

# U.S. NAVY MEDICINE

February 1978

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# U.S. NAVY MEDICINE

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**COVER:** Through basic and advanced training, Navy hospital corpsmen learn to cope with medical problems that range from the bumps and bruises of dependent children to major injuries suffered by combat troops. An up-to-the-minute report of Hospital Corps School training begins on page 14.

# **Occupational Health: A Must for Civilian Workers**

THE 1970s may be remembered as the Decade of Occupational Health. A recent flurry of federal legislation, executive orders, and Navy instructions gives evidence of national interest in combating workplace hazards that have potential for producing illness. At Navy activities, potentially hazardous ionizing radiation, noise, asbestos, lead, mercury, solvents, welding, and a host of other toxic chemicals have been identified, and action has been taken to inform workers about these hazards and to provide protection.

An important part of the Navy Occupational Health Program is protection of the 136,000 Navy civilian workers who support the fleet in shipyards, rework facilities, and innumerable other industrial facilities in the U.S. and abroad. These men and women are included in the occupational health programs mandated to guarantee that, through sound preventive medicine measures, active surveillance of all Navy workers is maintained. Monitoring may consist of physical examinations, chest X-rays, laboratory tests, bioassay to measure body burdens, audiometry, and measurement of specialized functions or body fluids.

Industrial hygienists and industrial hygiene chemists survey the work environments of Navy installations and, through on-site testing or analysis of collected air samples, determine if a particular toxic substance is within safe levels permitted for an eight-hour day. After



**VADM Arentzen is welcomed aboard  
USS Orion (AS-18).**


such a study, recommendations are made for any needed corrective measures, which may include redesigning a work process, substituting less toxic material for a chemical under scrutiny, isolating a particular operation, installing exhaust ventilation, or even removing the work to another area.

Of greatest importance is obtaining a complete occupational history that identifies the site of a worker's possible contact with potentially health-hazardous substances and determines the worker's compliance

with or failure to follow safe work and health practices. Also identified in such a history are materials to which the worker may be uniquely sensitive.

A skilled occupational health specialist—whether physician, hygienist, or nurse—can ferret out these incriminating toxins. Workers can then be helped to avoid further contact with them by controlling work practices that might lead to unwanted exposure to excessive levels of energies, or to injudicious or harmful inhalation, ingestion, or skin absorption of hostile environmental dusts, gases, vapors, and mists.

Our civilian labor force helps keep our ships at sea, our airplanes in flight readiness, our vehicles rolling, and our Navy and Marine Corps installations and equipment at top efficiency. Through the occupational health services of our naval regional medical centers, our health care delivery extends beyond care of the sailor to reach these civilian workers, too. In fact, our civilian workers are second in priority only to active-duty personnel when seeking health care. From this kind of health outreach comes the human content of fleet support.

  
**W.P. ARENTZEN**  
Vice Admiral, Medical Corps  
United States Navy

## Department Rounds



Patient records her medical history on cathode ray tube



Eye examinations test visual acuity and other eye functions

NNMC

## Health Testing: Now It's Automated

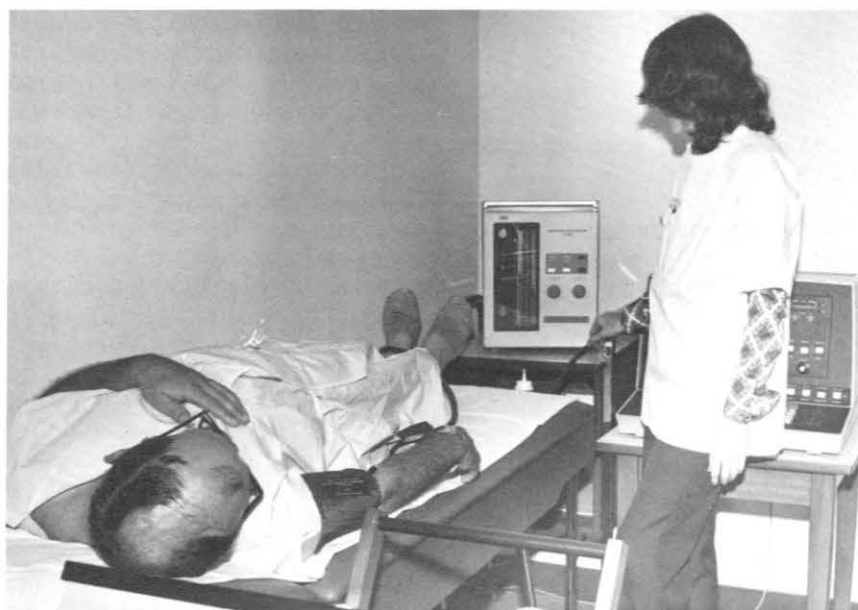


Clinic appointment clerk schedules physical exams over telephone

The Navy's automated multiphasic health testing system was dedicated at the National Naval Medical Center, Bethesda, Md., on 16 Sept 1977. A joint venture of the Navy and the Department of Defense Tri-Service Medical Information System (TRIMIS) Program, this is the first major clinic in a military medical facility designed specifically to expedite physical examinations and provide valuable pre-admission medical information on patients entering the hospital.

Planning for the AMHT Clinic began in 1973 when the problem of increasing requirements for medical care in the face of decreasing medical manpower was becoming evident, and computer technology was seen as one possible aid.

The new clinic occupies 4,800 square feet. Laboratory, X-ray, and other procedures required for a complete physical examination are



Blood pressure is taken automatically



Technician begins audiometry test



centralized here, so patients no longer have to move from station to station within the medical center. Most examinations can be completed within two hours, with the patient ready to go back to duty. The computer record provides quickly retrievable data that can be easily analyzed for treatment, reenlistment, change of duty, or hospital admission purposes. The information also provides a statistical base for planning.

An individual who needs a physical examination can make an appointment by telephoning the clinic appointment clerk, who will immediately enter pertinent information about the individual into the computer. Later, when the patient reports to the clinic, the data already stored in the computer will be confirmed. The patient will then be guided through a series of procedures by AMHT technicians thoroughly trained in caring for people as individuals as well as in operating machines that detect disease.

Clinic procedures include a computerized medical history that the patient administers himself; an extensive hearing evaluation; a thorough eye examination, to include a check for glaucoma; pulmonary function studies; an electrocardiogram (with a computerized report available in about five minutes); blood evaluation; and a complete blood count and urinalysis.

By the time the physician or physician's assistant is ready to examine the patient, much of the information needed to assist in the evaluation is available in a computer printout. Patients who have significant abnormal findings are referred to appropriate clinics and consultants.

When fully operational, the new clinic will process approximately 80 patients daily. If successful in supporting the Navy Medical Department mission, the prototype automated multiphasic health testing system will be considered for installation in other Navy medical centers as well as in Army and Air Force facilities.

## Four Win AMSUS Awards

Four Navy Medical Department officers came home with awards from the 84th annual meeting of the Association of Military Surgeons of the U.S. (AMSUS), held in Washington, D.C., 27 Nov-1 Dec 1977.

CAPT **Thomas J. Summerour** (MSC), chief of the Pharmacy Service at Naval Regional Medical Center San Diego, received the Andrew Craigie Award for outstanding accomplishment in advancing professional pharmacy within the federal government. CAPT Summerour was cited for significant contributions to federal pharmacy through outstanding leadership, innovative ideas, and

CDR Sanborn's award consists of a bronze plaque and \$500 honorarium. It was initiated by the Garrett Corp., and honors the memory of Major Gary Wratten, an Army physician who died while testing medical unit self-contained transportable hospital equipment under operational conditions in Vietnam.

LCDR **Karen A. Reider** (NC) of NRMC Oakland won the Federal Nursing Service Award for the best original essay advancing professional nursing. LCDR Reider's prize-winning essay, "Parents: The Unrecognized Victims of Child Abuse," will be published in *Military Medicine*.



(Left to right) CAPT Summerour, CDR Sanborn, LCDR Reider, LCDR Swanson

support of hospital pharmacy residency programs.

The award, which consists of a silver plaque and \$500 honorarium, honors Andrew Craigie, first Apothecary General of the U.S., who served under General George Washington during the Revolutionary War. It was established in 1959 by Lederle Laboratories Division of American Cyanamid Co.

The Major Gary Wratten Award for outstanding accomplishment in field military medicine went to CDR **Warren R. Sanborn** (MSC) of the Naval Health Research Center, San Diego. A specialist in public health and medical laboratory microbiology, CDR Sanborn was honored for innovative adaption of laboratory methods to technical operational field requirements, which "inestimably enhanced" the health of military personnel.

The Federal Nursing Service Award consists of a scroll and \$500 honorarium. It is sponsored by Roche Laboratories Division, Hoffman-LaRoche, Inc.

The Federal Medical Resident's Award, given by AMSUS to an outstanding federal medical resident working in a federal hospital teaching program, was won by LCDR **George C. Swanson** (MC) for outstanding technical, academic, and research accomplishments while a resident in otolaryngology at NRMC Oakland. During his ENT residency, Dr. Swanson completed numerous projects, including research on noise protection devices, related audiology, and dermal grafts. He is now assigned to NRMC Guam.

The Federal Medical Resident's Award consists of a plaque and \$500 honorarium, and is sponsored by the Purdue Frederick Co.

# The Pack

Transporting medical equipment and supplies from a ship's medical department to a shipboard casualty can be awkward and sometimes hazardous. Typically, the needed equipment and supplies are contained in a case about the size of a large fishing tackle box, which must be carried by hand. Oxygen aboard ship is contained in high-pressure cylinders often carried by their regulating valve—an extremely dangerous practice should the cylinders be damaged. Also, corpsmen and physicians who must carry this equipment to the scene of an emergency aboard ship find it difficult to negotiate narrow passageways, ladders, hatches, and catwalks.

One possible solution: mount emergency equipment and supplies to a backpack frame.

Under the sponsorship of the Naval Medical Research and Development Command, a two-pack system is being considered for development. One would be set up as a trauma pack useful in responding to all casualties aboard ship. Such a pack might contain one D oxygen cylinder, one surgical instrument and supply set, an Ambu bag, various splints, a blood pressure cuff, and intravenous supplies.

The second pack would be used to assist cardiac arrest victims. It would contain an ECG monitor/defibrillator, cardiac assist drugs, and oxygen.

Both packs would feature removable modules to allow various combinations of supplies to be carried. For example, special modules could be developed to treat burn victims, and modules that had been used could quickly be replaced by fully stocked units.

A mockup of a trauma pack—dubbed Medipak—has been produced by the Naval Ocean Systems Center, San Diego, and tested aboard USS *Tripoli*. This prototype



**FIGURE 1.** HM3 R. Cipriano tests Medipak aboard USS *Tripoli*

model (Figure 1) was built upon a modified frame available commercially. Also under consideration is the possibility of mounting the backpack on a Stokes litter (Figure 2), thus providing a platform for the ECG monitor/defibrillator unit and oxygen while the patient is moved to the medical department.

The compact Medipak can fit through an 18-inch hatch (Figure 3) and can be lowered between decks on a rope. A corpsman can climb through a 24-inch hatch while wearing it (Figure 4).

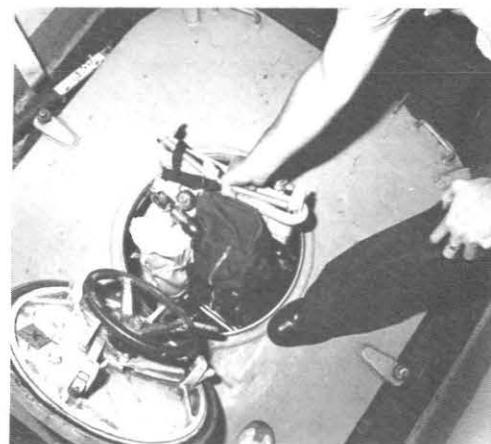
Biomedical engineers at the Naval Ocean Systems Center plan to fabricate other prototypes and carry out further tests and evaluations aboard ship. Ultimately, they will provide the Naval Medical Research and Development Command with recommendations on the feasibility of a medical backpack for shipboard use.

Comments and suggestions regarding the medical backpack concept and design are welcome. Write: Commanding Officer, Naval Ocean Systems Center, Attn: Code 823, San Diego, Calif. 92152.

—Story and photos contributed by Will T. Rasmussen, Ph.D., head, Biomedical Engineering Branch, Naval Ocean Systems Center.



**FIGURE 2.** Medipak mounted on Stokes litter provides platform for ECG unit



**FIGURE 3.** Medipak is lowered through 18-inch hatch aboard USS *Kitty Hawk*



**FIGURE 4.** HA White climbs through 24-inch escape trunk with Medipak

# BUMED SITREP

**NSHS BETHESDA . . .** The Naval School of Health Care Administration has a new name, a new commanding officer, and an expanded mission. It's now known as the Naval School of Health Sciences, Bethesda, and is under the command of CDR William J. Auton (MSC). He will oversee the School's training programs for Medical Department members at the technical, undergraduate, graduate and postgraduate levels, as well as selected training for the Army, Air Force, and Coast Guard.

In addition to the headquarters command at Bethesda and numerous clinical training programs at the National Naval Medical Center, NSHS Bethesda is now responsible for administration of training detachments at the Naval Undersea Medical Institute, Groton, Conn.; the Naval School of Health Sciences, Portsmouth, Va.; and the Academy of Health Sciences, Fort Sam Houston, Tex. Also, "C" Schools at the National Naval Medical Center that were formerly under the Naval Health Sciences Education and Training Command are now assigned to NSHS Bethesda for operations.

The new role of NSHS Bethesda now includes clinical training for hospital corpsmen in direct patient care areas such as physical and occupational therapy, operating room technology, and nuclear and undersea medicine. Various diagnostic training programs in clinical laboratory procedures, electroencephalography, and cardiopulmonary technology are also conducted.

The School also sponsors baccalaureate programs in health care administration—offered in cooperation with The George Washington University—executive medicine programs, seminars for prospective commanding officers, and a financial and supply management training course.

**REVISED PUBLICATION . . .** The seventh revision of *Medical Disposition and Physical Standards Notes*, which contains considerable revised and new material, will be ready for distribution this month. Commanding officers and officers-in-charge of naval medical facilities should inform BUMED (Code 331) of the number of copies needed for their activity.

**AMA SUPPORT . . .** The American Medical Association has pledged its support of efforts to combat "continued attrition" in the ranks of military physicians. Under a resolution passed by the House of Delegates late in 1977, the AMA would confer with Congressional Armed Services Committees, the Department of Defense, and the Surgeons General to identify causes of such attrition and seek solutions to the problem. A progress report is to be made at the AMA annual meeting next June.

**BLOOD PROGRAM . . .** By regionalizing its blood banks, the Navy is making better use of blood donated by sailors, Marines, and their families. The civilian community benefits, too, because efficient operation of Navy blood banks reduces the demand on civilian sources.

Since regionalization of Navy blood banks in 1973, the number of units of blood purchased from civilian sources has dropped from 7,000 to approximately 600 units a year. Also, with more efficient collection and processing procedures, the amount of blood that becomes outdated before it can be transfused has dropped from 40% of units available to less than 10%.

**ADVANCEMENT . . .** Navy men and women who attend "A" Schools will no longer be advanced to pay grade E-3 automatically upon graduation. Effective 1 Jan 1978, only those "A" School graduates who are fully qualified and who meet all requirements, including time-in-rate (six months as an E-2), will be advanced.

This new policy has been adopted because some people who received automatic advancements to E-3 subsequently declined accelerated advancement to E-4 to preclude obligating themselves to a five-year commitment. At the same time, they used the "constructive time" they acquired by early promotion to E-3 to go up for E-4 at a later date, without incurring an obligation beyond their regular enlistment. This procedure was contrary to the intent of the program.

After 1 January, "A" School graduates who have served at a command for four to eight months and who are recommended for accelerated advance-

ment to E-4 may be advanced to that grade at the discretion of their new commanding officer, even if they are not yet E-3's.

Details on this policy change are in revised BUPERS Notice 1430 of 1 Dec 1977.

**AMSO PROGRAM . . .** A number of flight surgeon, aviation physiologist, and aviation experimental psychologist billets have been identified and assigned to the Aeromedical Safety Officer Program to assure continued direct aeromedical safety support to Navy and Marine Corps aviation commands. New BUMED Instruction 5100.11 of 14 Oct 1977 sets forth the mission and function of the AMSO Program.

**AUDIT TIPS . . .** Medical activities may wish to consider these recommendations from recent audits:

- Improve meal count procedures, as required by BUMEDINST 10110.2A and NAVSUP P-486, par. 2113.
- Provide internal control and security over unissued meal passes, as required by BUMEDINST 10110.2A, section C, par. 6b and NAVSUP P-486, par. 2112.4.
- Establish a preventive maintenance program for food service equipment, as required by BUMEDINST 10110.2A, section 6, par. 4b.
- Use compensatory time instead of overtime pay for civilian employees in the grades of GS-10 and above.
- Review overtime authorization, and initial time and attendance cards certifying receipt of overtime authorizations, in accordance with NAVCOMPT Manual, par. 033002.
- Carry out internal review of civilian payroll and timekeeping.

**MAIL TO HAWAII . . .** Official mail continues to be misaddressed to discontinued FPOs in Hawaii. The result: delayed mail. For official mail to Hawaii, the correct civil address lines and civil zip codes should be used. It's not enough to change just the zip code: instead, the entire Hawaii civil address line must be substituted for the FPO line. For example, mail addressed to CINCPACFLT should read: Commander in Chief, U.S. Pacific Fleet, Pearl Harbor, HI 96860.



# Notes & Announcements

## DENTAL CONTINUING EDUCATION COURSES

The following dental continuing education courses will be offered in May 1978:

### *National Naval Dental Center, Bethesda, Md.*

Periodontics	1-3 May 1978
Dental auxiliary utilization	8-10 May 1978
Management seminar	15-17 May 1978

### *Eleventh Naval District, San Diego, Calif.*

Periodontics	15-17 May 1978
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### *Letterman Army Medical Center, San Francisco, Calif.*

Oral surgery	1-4 May 1978
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Requests for courses administered by the Commandant, Eleventh Naval District, should be submitted to: Commandant, Eleventh Naval District (Code 37), San Diego, Calif. 92132. Applications for other dental continuing education courses should be submitted to: Commanding Officer, Naval Health Sciences Education and Training Command (Code 5), National Naval Medical Center, Bethesda, Md. 20014. Applications should arrive six weeks before the course begins.

Cross-country travel and travel from outside the continental U.S. to attend dental continuing education courses generally will not be approved due to funding limitations.

## CONTINUING EDUCATION FOR NAVY NURSES

The Naval Health Sciences Education and Training Command will sponsor the following continuing education courses for Navy nurses:

### *Oncology Nursing—Progress, Problems, and Prospects*

(18 contact hours)

17-19 April 1978

NRMC Oakland, Calif.

General staff nurses will learn new approaches to nursing care of oncological patients and their families. The changing and expanding concepts of therapy will be presented, with emphasis on the implications for patient care.

### *Critical Care of the Respiratory Patient* (30 contact hours)

24-28 April 1978

NRMC Great Lakes, Ill.

For critical care nurses with special interest in respiratory failure. The physiology of the respiratory and contributing systems will be considered, as well as mechanical and electrical equipment used to support and monitor these systems. Training in basic EKG interpretation is required for enrollment in this course.

The courses are open to Nurse Corps officers not currently assigned to an oversea billet. However, nurses assigned to Argentina, Newfoundland; Bermuda; Guan-

tanamo Bay, Cuba; Keflavik, Iceland; and Roosevelt Roads, Puerto Rico, who have served at least six months on active duty may apply. The courses are also open on a space-available basis to Nurse Corps officers of the inactive Reserve.

Nurse Corps officers wishing to attend these courses should apply to the Naval Health Sciences Education and Training Command (Code 7), National Naval Medical Center, Bethesda, Md. 20014, following procedures set forth in the BUMED Instruction 1520.8 series. Applications should be submitted several weeks before a course begins.

## CORRESPONDENCE COURSE ON COMMUNICABLE DISEASES IN MAN

The Navy correspondence course, "Control of Communicable Diseases in Man" (NAVEDTRA 10772-C), has been revised and is available to Medical Department officers, enlisted personnel on active duty, and Reservists in an inactive duty status.

The new text, *Control of Communicable Diseases in Man*, 12th ed., American Public Health Association, 1976, edited by Abram S. Benenson, provides the latest information on the control of communicable diseases. Each disease is identified by clinical nature and laboratory diagnosis, and is differentiated from allied or related diseases. Emphasis is placed on disease occurrence, infectious agent, reservoir, mode of transmission, susceptibility, resistance, and methods of control.

The course consists of five assignments. Reservists must complete the course while in an inactive duty status in order to receive 10 retirement points. Personnel who have completed earlier versions may receive additional credit toward retirement for completing the revised course.

Requests for enrollment should be forwarded via official channels on form NAVEDTRA 1550/1 by changing the "to" line to read: Commanding Officer, Naval School of Health Sciences, Correspondence Courses Training, National Naval Medical Center, Bethesda, Md. 20014.

## ADVANCED FORENSIC PATHOLOGY COURSE SET FOR MAY

The Armed Forces Institute of Pathology (AFIP) will offer an advanced forensic pathology course 1-5 May 1978 at the FBI Academy in Quantico, Va. Topics to be covered include forensic immunohematology, ballistics, forensic photography, handling of physical evidence, investigations of homicide scenes, fingerprint examinations, hair and fiber examinations, presentation of findings in court, pathology of poisons, and patterns of injury.



Residents in forensic pathology, pathologists of the Armed Forces and federal service, and civilian pathologists are eligible to attend. This course is open only to people who have previously taken the AFIP basic forensic pathology course or who have equivalent experience in forensic pathology. All meals and lodging will be provided at no cost to the participants.

Applications are available from the Director, Armed Forces Institute of Pathology, ATTN: AFIP-EDZ, Washington, D.C. 20306.

### **FELLOWSHIPS IN INFECTIOUS DISEASE**

The Infectious Diseases Division of the National Naval Medical Center Department of Medicine invites applications for fellowships in infectious disease.

The two-year program will consist of clinical, laboratory, and research experiences in all fields of infectious disease. Candidates may elect to emphasize tropical medicine, with part of their clinical training in a Navy overseas research laboratory.

The program is part of the Uniformed Services University of the Health Sciences, and meets requirements for the American Board of Internal Medicine examination in infectious diseases.

Candidates must have completed 36 months of postgraduate clinical training in internal medicine, and must be eligible for a commission in the Navy. For further information contact the Chairman, Department of Medicine, National Naval Medical Center, Bethesda, Md. 20014.

### **OCCUPATIONAL SAFETY AND HEALTH GRANTS AVAILABLE**

The National Institute for Occupational Safety and Health (NIOSH) wants research and demonstration grant applications designed to promote occupational safety and health. Innovative approaches designed to define occupational safety and health problems and to recommend solutions, to understand and prevent occupational disease and accidents, and to eliminate or control hazards are also welcome.

Primary emphasis is placed on investigations related to cause and prevention of skin, neurologic, respiratory, and musculoskeletal and back disorders; reproductive effects of occupational hazards; occupational safety; and control technology for occupational hazards. Other areas include, but are not restricted to, occupational safety and health-related behavioral and motivational factors, epidemiology, ergonomics, physiology, toxicology, pathology, effects of physical agents, head and body protection, biological and environmental sampling and analysis, and the development of physical and chemical analytical methods.

Applications should be submitted on NIH Form 398 to the Division of Research Grants, National Institutes of Health, Westwood Building, Bethesda, Md. 20014.

For further information contact: C. Ilana Howarth, Research Grants Program Officer, National Institute for Occupational Safety and Health, Parklawn Bldg., Room 8-63, 5600 Fishers Lane, Rockville, Md. 20857. Or telephone: (Area code 301) 443-4493.

### **AMERICAN ACADEMY OF FAMILY PHYSICIANS TO MEET**

The fifth annual meeting of the Uniformed Services Chapter, American Academy of Family Physicians, will be held 11-14 April 1978 at the Jacksonville (Fla.) Hilton Hotel.

The academic program has been approved for 18 hours of continuing medical education credit by the American Academy of Family Physicians. Sessions will cover gastroenterology, dermatology, urinary tract infections, ophthalmology, sexual dysfunction, alcoholism, office orthopedics, and office management. A half day will be devoted to papers by military physicians, and another half day for chapter business.

Registration fee is \$30 for members of the Uniformed Services Chapter and \$60 for nonmembers. Interested personnel should contact: ENS Michael R. McKenna, MSC, USN, Department of Family Practice, Naval Regional Medical Center, Jacksonville, Fla. 32214.

### **MEMBERSHIPS IN AMERICAN COLLEGE, HOSPITAL ADMINISTRATORS**

The following Navy officers have been elected to membership in the American College of Hospital Administrators:

CAPT J.C. Smout, MSC, USN  
CDR L.E. Angelo, MSC, USN  
CDR L.L. Biesiadny, MSC, USN  
CDR W.A. Godfrey, MSC, USN  
CDR J.E. Johns, MSC, USN  
CDR V.A. Swindall, MSC, USN  
LCDR F.F. Briand, MSC, USN  
LCDR W.M. Buckley, MSC, USN  
LCDR D.H. Fisher, MSC, USN  
LCDR L.V. Hilling, MSC, USN  
LCDR W.P. McGrath, MSC, USN  
LCDR H.H. Yates, MSC, USN  
LT C.W. Hagen, MSC, USN  
LT R.T. Howerton, MSC, USN  
LT R.S. Kayler, MSC, USN  
LT J.A. Kramer, MSC, USN  
LT C.C. Langston, Jr., MSC, USN  
LT D.J. Lemmerman, MSC, USN  
LT J.E. McBride, MSC, USN  
LT M.L. Mitchell, MSC, USN  
LT D. Suttle, MSC, USN  
LT G.A. Swales, MSC, USN  
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## Features

# Preventive Medicine: Is It the Career for You?

CAPT P.F.D. Van Peenen, MC, USN

Many Navy physicians finish the first year of graduate medical education and an operational tour, or even specialty training in a clinical field, without deciding whether to remain in a strictly clinical practice. Sometimes overlooked is a specialty rich in opportunity and professional satisfaction: preventive medicine.

Both within military medicine and in the civilian world, career opportunities in preventive medicine are enticing. The demand for epidemiologists, occupational medicine physicians, and other preventive medicine specialists has never been greater. Academe, federal and local governments, research and industry all need such specialists. In addition, preventive medicine has shed its stereotype as a roost for unimaginative physicians who are not clinically oriented.

Most schools of medicine—the Uniformed Services University of the Health Sciences (USUHS) among them—emphasize preventive medicine training for all students early in their curriculum. Team leaders for most of the large projects which will eventually dictate how medicine is practiced in this country are, more often than not, preventive medicine physicians. Finally, training in preventive medicine leading to board certification, including an academic year at an approved school of public health, is not overly long, nor is the payback time all that extensive.

Although not obvious at first blush, many clinical decisions—and the majority of decisions with medical implications that are made by our Line colleagues—are based on sound epidemiological principles. Whether to immunize a female recruit against rubella, whether to order malaria prophylaxis for an entire Marine Corps battalion, whether to change outpatient clinic hours, whether to administer prophylactic antibiotics after surgery are but a few examples of the decisions with individual or community impact that are made every day. Unfortunately, such decisions can be based on a biased collection of data or worse, on biased interpretation. This is where specialty training in preventive medicine pays off.

Consider also that academic career opportunities now exist at the USUHS—the military medical school. A strong, tri-service staffed Department of Preventive

Medicine is a basic science department at the University, and is headed by a military medical officer. Concerns of the Department of Preventive Medicine range from providing a solid curriculum for medical students to studying the epidemiology of diseases of military personnel and their families, to basic laboratory work in tropical diseases, to organizing a graduate program for physicians and allied scientists.

### Who should apply?

Any graduate physician may apply for Navy-sponsored training leading to board certification in general preventive medicine. Physicians already board eligible or qualified in other specialties may also wish to consider preventive medicine as a second career. Preference is given to physicians completing an operational tour and to physicians with excellent academic records.

The director of preventive medicine at the Bureau of Medicine and Surgery (Code 55) and the Specialties Advisory Committee which reviews all requests for Navy-sponsored training in preventive medicine consider these factors in selecting residents:

- academic record in medical school and the GME year.
- motivation.
- military record.

A physician may apply for other residencies at the



Exotic disease research under way in Southern Sudan

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same time he or she applies for preventive medicine training; there is no reason, for example, that one cannot apply for, say, both family practice and preventive medicine residencies.

### How to apply?

For training to start in 1979, applications with supporting documents should be submitted by 15 Aug 1978 to the Commanding Officer, Naval Health Sciences Education and Training Command in accordance with BUMED Instruction 1520.10G of 12 May 76.

### What kind of training?

The coming academic year will last from September 1979 until June 1980. Successful applicants work toward a master's of public health at a civilian school of public health. Both school and curriculum must be approved by the BUMED director of preventive medicine, who acts as ad hoc adviser to all Navy-sponsored physicians enrolled in the program. (Some schools and some curricula are more appropriate for military physicians than others.)

Alternative programs approved by BUMED could include placement in a program monitored by the USUHS Department of Preventive Medicine and conducted collaboratively with the Walter Reed Army Institute of Research, with the physician reporting in July 1980 for a one-year residency. The Walter Reed program consists of a six-week didactic course in tropical medicine followed by a year of varied residency experience. Teaching opportunities during the residency are available at the USUHS. Training in occupational and aerospace medicine can be adjusted to individual interests and monitored by the specialty advisers at BUMED.

### Payback time?

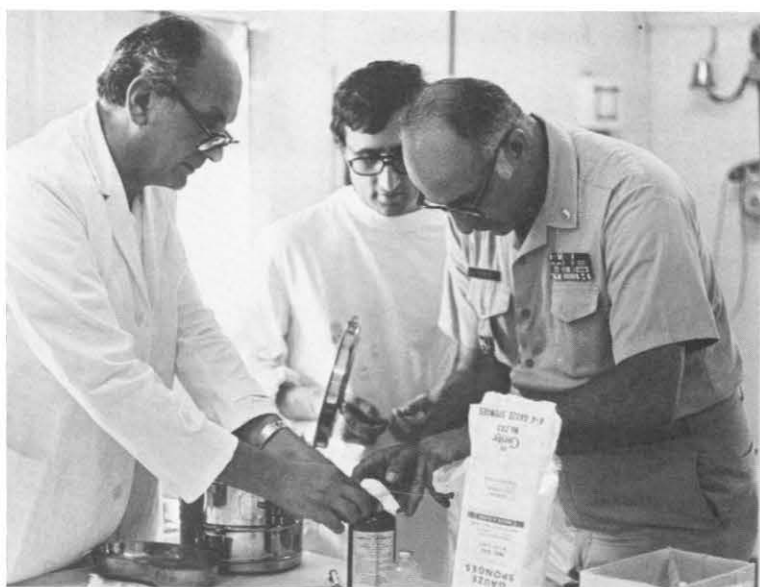
A total of two years for both training years (M.P.H. plus the residency) is involved, so only two years are obligated after completion of the residency.

### Eligibility for board certification?

Eligibility depends on previous education (time in clinical residencies may be applied). Physicians are eligible for board certification no later than three years following their residency, and usually sooner. Details should be discussed with BUMED's director of preventive medicine.

### Future assignments?

These are determined principally by the BUMED director of preventive medicine in consultation with the physician being assigned. Assignments may include duty at Navy environmental and preventive medicine units in Hawaii, San Diego, Naples, or Norfolk. Other possibilities include research assignments at one of the naval medical research units in Jakarta, Cairo, or Taipei, at the USUHS, at the Navy Environmental Health Center, and many other assignments.



**Navy immunization programs fight back against disease**

### But will the Navy support preventive medicine?

It cannot do otherwise. The Navy Surgeon General is on record as supporting preventive medicine programs, as demonstrated by his letters on alcoholism, asbestosis, and smoking. And the USUHS is firmly committed to preventive medicine teaching and research.

For answers to other questions or for further information, contact:

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# Getting Our Act Together

CDR Anne L. O'Connell, NC, USN

One can hardly read a newspaper or magazine without coming across an article about health care. Whether the issue is who is going to deliver health care or who is going to pay for it, everyone seems to be getting in on the act.

At Naval Regional Medical Center San Diego, the act in Navy nurse practitioner education is a duet starring the medical center and the University of California, San Diego.

## HISTORY OF THE PROGRAM

Faced with a shortage of general medical officers in 1973, RADM Herbert G. Stocklein (MC), then commanding officer of NRMC San Diego, appointed an ad hoc committee to study the outpatient health care delivery system. Among the committee's recommendations was institution of a special program to educate nurses to deliver primary health care.

In July 1973 just such a program was begun to prepare nine Nurse Corps officers to function as ambulatory care nurse practitioners. Training lasted six months, and upon graduation the nine nurse practitioners were placed in various assignments within the medical center.

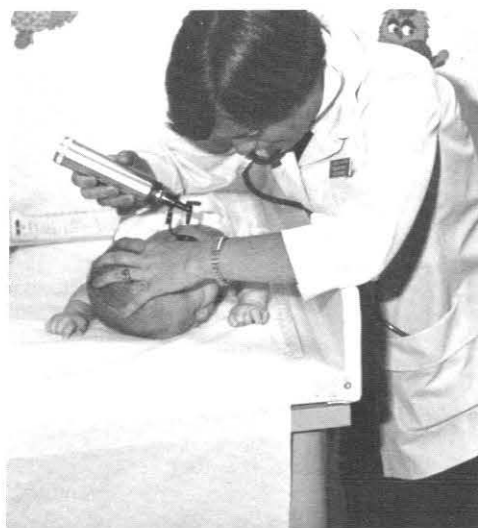
After this initial effort, options for continuing what appeared to be a promising program were considered. In an effort to place the program within the framework of an educational institution, the University of California, San Diego, was

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approached to explore the feasibility of extending the program under the auspices of the University. There was great interest within the Department of Continuing Education, and a memorandum of understanding was subsequently written to establish a program that would award a nurse practitioner certificate and continuing education credit to each graduate. The program gained official Bureau of Medicine and Surgery sponsorship in May 1974. During the past year the program has been transferred to the School of Medicine, University of California, San Diego, so graduates receive both a nurse practitioner certificate and upper division academic credit transferrable to other institutions of higher education.

## WHERE WE ARE NOW

Just as any longstanding production requires good criticism to im-



LCDR Holman checks for ear infection



CDR O'Connell (right) supervises students during fundoscopic examination



Students learn use of ophthalmoscope



prove and an occasional change in the cast, so too, our joint act is under constant surveillance from both starring performers to assure the latest and best in nurse practitioner education.

The training program, which now lasts one year, is designed to educate civilian registered nurses and Navy Nurse Corps officers to practice in expanded nursing roles. It offers three areas of specialization: family practice, obstetrics and gynecology, and pediatrics. During the first two quarters, the required core curriculum includes a review of anatomy and physiology, cell biology, history-taking, interviewing, physical examination, psychosocial assessment, problem-solving techniques, and adaptation to the expanded role. The third and fourth quarters are devoted to clinical practice (preceptorship) in the student's specialty area, augmented by seminars and continuing didactic classes. Among the facilities used, in addition to NRMCS San Diego and its regional clinics, are the University hospital and clinics, Kaiser Permanente Medical Group, San Diego State University Student Health Services, and several community clinics and private physicians' offices.

The primary goal is to graduate nurses who can make a broad contribution to patient care. By gaining the additional tools of history taking, physical examination, and assessment—tools for many years thought to be the sole prerogative of the physician—nurse practitioners can help build a trusting, productive relationship between health care provider and patient. As it is often easier for patients to present themselves for cure rather than care, it is the person who initially deals with their physical complaints who will be most effective in helping patients deal with the psychosocial and educational aspects of health care. For this reason, nurses have been more successful helping patients manage their health problems when they, as nurse practitioners, make the initial contacts. The effect of eliciting a

detailed history and performing a thorough physical examination can never be underestimated in the long-term therapeutic nurse practitioner-patient relationship; it should be viewed as the basic building block for all health management and teaching to follow.

### AFTER GRADUATION

Within the Navy health care system today, nurse practitioners are functioning in many areas, from pediatric and internal medicine clinics to family practice and Ob/Gyn settings. A recent survey of 27 Navy family nurse practitioners showed that most were satisfied with their new expanded role. By far the greatest satisfaction came from patient acceptance of the nurse as primary health care provider. Many nurses welcomed the opportunity to practice in a health-oriented rather than illness-oriented framework; also, most of the nurses felt great satisfaction from their relationship as colleagues with other health professionals—physicians, nurses, and paraprofessional personnel.

It would be naive to say there are no problems. The tendency to place the nurse practitioner in a medical rather than a nursing model has led to some frustration. Effective nursing takes time: many nurse practitioners have had to educate and re-educate administrators on the importance of a time framework that will meet the needs of both the institution and the nurse practitioner. Additionally, there are billet constraints limiting the number of nurses who can be educated for the expanded role of nurse practitioner and the facilities to which they can be assigned upon graduation. Identifying these and other problems has helped the Navy focus attention in its continuing endeavor to evaluate and improve the utilization of its nurse practitioners.

By far, the satisfactions of this expanded role outweigh the frustrations. By adopting and integrating traditionally medical tasks into our

nursing practice, we are narrowing the gap between ourselves and the patient—a distance we have been trying to overcome for years.

Some days we feel that our act is still on the road and hasn't yet made the Broadway big time. Often, on just this type of day, our patients respond to our nursing skills with, "It's nice to have someone who listens" or "No one ever explained that to me before." That's when we realize how important and satisfying our new role is.



Reflex check is part of physical exam

### WHO MAY APPLY?

The Navy Nurse Corps, with its educational program and support of nurse practitioners in the expanded role, is helping lead the way for the expansion of nursing in primary health care. Applicants for the nurse practitioner programs should be Nurse Corps officers who have had a minimum of three years of diversified experience (at least one year in the desired area of specialty) and are motivated towards a Navy career. Applicants must be mature and responsible; they must have knowledge of their own behavior and attitudes towards patients in a therapeutic situation, or be willing to explore their own behavior and attitudes. The pioneers in the expanded role of Navy nursing must be qualified for leadership positions, since the definition and implementation of the new role will largely be their responsibility when they begin to practice in Navy health care settings.

## Soundings

'Bibliotherapy' helps patients understand . . .

# The Necessity of Suffering

Louis Shattuck Baer, M.D.

Forty years of practicing medicine, 30 as a family physician, have taught me that often the precepts of philosophy surpass medicine or surgery as therapy for patients. It is not that physicians attempt to carry philosophy over into medicine; rather, as Victor Frankl observed, "Patients are constantly presenting us with philosophic problems" (1).

Please note this short article is about the *necessity* of suffering, not the inevitability of suffering. It is my thesis that suffering is as necessary as oxygen, nitrogen or carbon for man's origin, evolution and survival.

I believe that the mechanistic evolution of mankind through genetic mutation and natural selection presupposes at least 300 million years of conscious suffering by sentient creatures. Surely Loren Eiseley was thinking of the evolutionary necessity of suffering when, in *The Immense Journey*, he described his feelings on finding a pre-human skull, perhaps ten million years old, at the bottom of a deep, narrow crack in some sandstone. He contemplates this fossil skull, and then the cunning manipulability of his own fingers, and records his thoughts in these words:

Think of the way we came and be a little proud! Think of this hand—the utter pain of its first venture on the pebbly shore.

Robert Ardrey, too, in *African Genesis*, alludes to the suffering of our arboreal ancestors forced to become terrestrial by the terrible ten-million-year drought that converted Miocene forests into the bush and grasslands of the Pliocene Age. Ardrey writes:

We are bad weather animals, disaster's children . . . For the soundest of evolutionary reasons we appear at our best when times are worst.

That is, when we suffer.

Dr. Baer is emeritus clinical professor of medicine, Stanford University School of Medicine. His office is at 411 Primrose Rd., Burlingame, Calif. 94010. Dr. Baer served in the Navy Medical Corps during World War II, and was a contributor to the *U.S. Naval Medical Bulletin*, a forerunner of *U.S. Navy Medicine*.

One final word on the evolutionary necessity of suffering. Though man is the latest of the primates, I am sure he is not the last. Our suffering as a species is necessary to mold by natural selection and genetic mutation the improved primate who will walk this earth in ages to come. I cast my vote with those who believe in the improvement of *Homo sapiens* through suffering.

### NECESSITY FOR ACQUIESCENCE

The Book of Job, written by a Hebrew scholar and poet about 450 B.C., is the only part of the Old Testament which deals reflectively with the problem of suffering. Throughout the rest of the Old Testament there is little questioning—only the statement that disobedience to the law of God results in punishment, suffering and misery. From the standpoint of philosophic therapy, this belief is valueless.

There are, however, two parts of the Book of Job that I have prescribed as "bibliotherapy" for the patient who asks me, "Why *must* I suffer?"

The first is Chapter 2, verses 9-10, in which Satan is given permission to "touch Job in his bone and flesh." We see Job tormented, sitting among ashes, scratching his boil-covered skin with a potsherd. Here the poet anticipates by 2,500 years Jacobi and Jung in their feeling that "suffering is not an illness; it is the necessary counterpole to happiness" (2).

Chapters 38 through 42, in the second part of the Book of Job, also may be helpful for the patient who questions the *why* of suffering. These are magnificent and dignified passages whose poetry and thought have never been surpassed. Job remembers his past health and strength, cites his present sorrows and miseries, and questions the reasons for his suffering. The response begins with the familiar lines: "Then the Lord answered Job out of the whirlwind: 'Who is this that darkeneth counsel by words without knowledge?'"

In the following five inspired chapters, the Hebrew poet says what Albert Schweitzer thousands of years later summarized so brilliantly:

All thinking must renounce the attempt to explain the Universe. . . . The Spirit of the Universe creates while it destroys and destroys while it creates. . . . It remains to us a riddle. The first active deed of thinking is resignation—acquiescence in what happens (3).

### PATIENT REPORT

A 58-year-old lawyer, who has been my patient for 25 years and whom I have known since our undergraduate days in 1931, helps illustrate Nietzsche's statement that "the fleetest beast to bear you to perfection is suffering" (4). For a score of years, this lawyer was superlatively successful academically, professionally, financially and socially. By 1951 he was the most arrogant, offensive man I knew.

Then Clotho, the Goddess of Fate, who spins the thread of life, nudged his car on the freeway. The acci-

dent so badly damaged his cervical spinal cord that since then he has been able to walk only short distances, slowly, on level ground, and with the aid of two crutches. His arms are so weak and his fingers so awkward that his wife has to help him with his bathroom needs and in getting dressed. He must rest supine 16 hours a day.

He had to give up trial law, and took a job doing legal research for a local law firm, at a greatly reduced income.

For the first three years after his accident he was in despair and often suicidal. He had frustrating sexual problems, severe financial problems, and a battalion of humiliating trials as a result of his crippled state. As treatment, I provided chiefly hope, friendship, and bibliotherapy. When I made my house calls, I would bring him books from our public library—works of history, biography and philosophy that I enjoyed studying; works of playwrights and novelists that I enjoyed for recreation.

This man's metamorphosis has been as complete as any in the world of zoology, though it took nearly ten years. Today he is kind, patient, tolerate and compassionate—qualities for which he previously was not greatly noted.

While we were both enjoying some after-dinner claret last year, I told my friend I thought he illustrated Thackeray's thesis: "There are a great number of excellences which might never come into existence had not sorrow or misfortune engendered them" (5).

My friend replied by taking down from his library shelf two books. In *The Chosen*, by Chaim Potik, he showed me where he had doubly underlined the sentence, "Suffering has meaning only if we give it meaning." On the inside cover of George Eliot's *Adam Bede*, he had copied the author's statement: "Deep unspeakable suffering may well be called a baptism, a regeneration . . . doubtless a great anguish may do the work of years." He had copied these words in red ink when his handwriting was still nearly illegible as a result of his injuries.

He told me that two quotations I had given him had helped him in the struggle to get back on his feet. From his wallet he withdrew an old, faded, folded prescription blank. On it, 25 years earlier, I had printed:

That which does not kill me makes me stronger.

Friedrick Nietzsche  
Thus Spake Zarathustra

Misfortune is a good breast for the nourishment of great souls.

Victor Hugo  
Les Miserables

### PHILOSOPHIC NECESSITY

A patient afflicted with a severe, or chronic, or progressive illness will sometimes ask, "Why must I suffer?" He is, of course, seeking the philosophical

rather than the physiological answer. If we are unable medically to relieve his suffering, we must try, as Kazantzakis said, "to change the eyes with which he sees the reality of his suffering" (6). This is particularly important in caring for patients whose strength or faith has been weakened by a long and serious illness, for these are the patients who most need philosophic therapy.

As a family doctor, I believe it is the physician's responsibility to relieve or diminish his patient's suffering. But it is the physician's *duty*, when indicated, to show the patient the necessity of suffering.

Many of my patients have found these reflections helpful:

That there is suffering in this world needs no supporting arguments. We have reason to believe that, although we may hope for a better, we need not look for a perfect world, either in the near or distant future . . . for it is imperfect of necessity . . . Existence involves diversity and movement and thus better and worse! . . . To ask that these differences should be eliminated is to ask that the universe and we with it should pass away.

The discords (mighty opposites) are a factor in the scheme . . . they are a necessary condition of existence . . . Existence is therefore of necessity oxymel, i.e., bittersweet.

. . .

From the fountain of life, from the slow sweet hours that bring us all things good, from the slow sad hours that bring us all things ill . . . are derived all our possessions, all the wealth and substance, all subjects and all qualities, all that makes us what we are (7).

Let us be thankful that our sorrows live on in us as an indestructible force, only changing their form, as forces do, and passing from pain into sympathy and understanding (8).

It is only through his ability to reflect and act upon his suffering that a man is able to rise above himself . . . When you have wet the earth with your tears to the depth of a foot, then you will take joy in everything (9).

Without the suffering that our race has endured for the past 20 milleniums, human beings would perish from the earth and be replaced by a nonreflective anthropoid primate. In a word, a world without suffering would become a world without man.

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## Education & Training

# Schools That Train Heroes

In terms of appearance, "Doc" Jackson wasn't much to write home about that day back in 1968. Slumped on his bunk in a pair of dirty jungle greens, he looked something like a laundry bag full of loose socks. But Jackson was a Navy hospital corpsman who had done something extraordinary: during the past day and a half in the field, with nothing more than his medical first-aid kit and sheer determination to help him, he had saved the lives of four Korean Marines who had stumbled onto a land mine and were bleeding profusely when he reached them.

Back in his neat dispensary, physically and mentally exhausted after the experience, Jackson passed it off as doing the job for which he had been trained.

Leroy Jackson was among hundreds of Navy hospital corpsmen who found themselves in odd, often isolated locations in South Vietnam. The dedication and professionalism they and their Army and Air Force counterparts demonstrated as paramedics in that war saved thousands of lives.

They were the men at the beginning of a long but remarkably efficient medical pipeline which reached from the battlefield to the finest medical facilities in the U.S. It was a system of health care delivery made possible by the skill and devotion of the "Docs," the versatility of helicopters, and the speed of jet aircraft.

**Basics.** How does the Navy equip a hospital corpsman to cope with medical problems that range from the bumps and bruises of dependent children to major injuries suffered by combat troops?

CDR Gene L. Hammett (MSC), executive officer of the Naval School of Health Sciences, San Diego, ex-

plains the broad concept that produces Navy hospital corpsmen. "The process begins in basic recruit training," CDR Hammett says. "A few individuals are selected after spending time in the fleet, but the majority of candidates come directly from recruit training. They are carefully screened and tested and must meet rigid personality standards before they are accepted. Most are high-school graduates with good academic records, and all must have a desire to work with people."

Navy hospital corpsmen begin their careers by attending Basic Hospital Corps School at either San Diego or Great Lakes, Ill. This ten-week training offers students 400 hours of instruction—344 hours of didactic training and 56 hours of practical and laboratory experience.

The Basic Hospital Corps School curriculum covers anatomy and physiology, patient care and ward experience, environmental health, drug therapy, mathematics, and administrative and military procedures. The largest block of time—102 academic and 36 practical experience hours—is dedicated to patient care. Students study team care concepts and nursing procedures for surgically and medically ill patients, and become familiar with medical terminology.

Another 70 hours of instruction are devoted to emergency medical treatment. Students are taught the principles of providing emergency care under a variety of circumstances—from cardiopulmonary resuscitation to emergency childbirth.

**Direction.** "The school gives men and women the basic knowledge they will need to function competently as medical assistants," CDR Hammett says. "When they complete Basic Hospital Corps School, they are qualified to fill a broad

spectrum of jobs with the operating forces or at shore facilities."

Graduates also receive a certificate from the Department of Transportation certifying that they have completed the educational requirements for Emergency Medical Technician Level I.

At the Naval School of Health Sciences, San Diego, the faculty is made up of 26 officers and 91 senior enlisted men and women. The officers include one physician, 17 nurses, and eight Medical Service Corps members. In addition to the Basic Hospital Corps School, the faculty has academic responsibility for 11 advanced training programs. The faculty at Great Lakes, responsible for the Basic Hospital Corps School, consists of 14 officers and 17 enlisted members. Both faculties have a cadre of support personnel.

"Here at San Diego, we graduate about 2,500 men and women from the Basic Hospital Corps School each year," CDR Hammett reports. "That's approximately 50 students a week for 50 weeks. The school at Great Lakes graduates a similar number of students."

"It isn't an easy school to complete. About 10% of Basic Hospital Corps School students are lost for a variety of reasons, including academic failure, lack of motivation, and in a few cases disciplinary problems. But on the whole, both schools have a good success average."

After this basic education, the direction a hospital corpsman's career takes usually depends on his or her interest and talent. "Most graduates of the Basic Hospital Corps School go directly to billets ashore or afloat where they gain experience working with patients," CDR Hammett says. "Occasionally previous experience or unique qualifications allow a graduate to immediately enter advanced training in a specialized discipline."

**Advanced school.** After completing Basic Hospital Corps training and serving approximately one year in the field, a hospital corpsman can apply for advanced training. These



advanced schools are known as "C" Schools. The Naval School of Health Sciences, San Diego, hosts 11 advanced programs: pharmacy, cardiopulmonary, medical laboratory, cytotechnology, ocular, operating room, otolaryngology, urology, X-ray, clinical nuclear medicine, and advanced hospital corpsman. Advanced programs are also located at the Naval School of Health Sciences, Portsmouth, Va.; Naval Aerospace Medical Institute, Pensacola, Fla.; Naval Undersea Medical Institute, New London, Conn.; Naval Regional Medical Center, Oakland, Calif.; and several other sites. Army, Air Force and



Students learn the fine points of patient care from LT Gearhart (NC)

Coast Guard students, as well as Navy members, attend these advanced schools.

Of the 11 advanced programs offered at San Diego, one of the most demanding is the 40-week course of instruction for men and women destined to become advanced hospital corpsman technicians (formerly called independent duty technicians).

Two hundred and fifty candidates are selected each year for Advanced Hospital Corpsman Technician School. Five classes, each with 25 students, convene each year at San Diego and Portsmouth. Standards for prospective students are rigid: only senior petty officers are accepted and competition for entrance is keen.

"Everyone is screened for interest, maturity, experience, and past performance," CDR Hammett says. "The attrition rate is minimal."

"The school is designed to give students knowledge in breadth rather than depth, although each area is thoroughly covered," he explains. "Corpsmen who complete Advanced Hospital Corpsman Technician School are qualified to serve as paramedics in the truest sense of the word. I know of no comparable course of study in the civilian medical sector."

**Independent.** CDR Hammett points out that advanced hospital corpsman technicians aren't physician surrogates. "They are trained to handle most medical situations independently, with the advice and consent of physicians if at all possible," he says. "But by the very nature of the Navy's mission, the advanced hospital corpsman technician on independent duty must be able to handle both routine and emergency problems with little or no outside help."

CDR Hammett explains that with some 450 ships in the fleet, it's impossible for each one to carry a medical officer. As of 31 Oct 1977, there were 1,115 billets afloat and ashore requiring the assignment of advanced hospital corpsman technicians. On ships with small crews and at overseas shore stations where a physician is not assigned, the advanced hospital corpsman technician must provide for the medical needs of the crew—rendering treatment which is within his capability and, when possible, aeromedically evacuating patients who need the skills of a physician and the facilities of a hospital.

Candidates for the advanced hospital corpsman technician designation spend a total of 1,600 hours in didactic and practical training. The largest single block of instruction is devoted to management of medical and surgical situations; in these classes, students are introduced to diseases and traumatic conditions they can expect to encounter as advanced hospital corpsman techni-

cians. Another 88 hours are spent in laboratories where students apply the knowledge they've gained in the classroom.

Emphasis is also given to preventive medicine and environmental health. In 193 hours of training, students learn principles of food and water sanitation, vector and communicable disease control, preventive dentistry, and control of industrial chemicals and materials hazardous to individuals and the environment. Other areas covered include administration of health education programs, Medical Department management, medical sciences, and clinical operational observation.

**Total dedication.** "The course of study is designed to take advantage of prior training and experience," says CDR Hammett. "By the time a person is accepted for Advanced Hospital Corpsman Technician School, he or she usually has several years of experience and has often gone through specialized training in one or more of the medical disciplines. All these skills are channeled into a program which enables the advanced hospital corpsman technician to provide health care in support of or in the absence of a physician."

Hollywood's version of the hospital corpsman performing a dramatic life-saving procedure aboard ship under adverse conditions is overdramatized for effect. Although the advanced hospital corpsman technician on independent duty must be able to meet emergency situations in a calm and confident manner, the everyday job of tending to the crew's health and welfare is far more demanding and requires total dedication.

Medical technology and the tools of medical care have developed over the years but the concept of unselfish concern and the Medical Department's tradition of humanitarian service remains unchanged. Many Navy hospital corpsmen have died carrying this tradition into battle.

—Story and photos contributed by Lee W. Coleman.

## Instructions and Directives

### Nonnaval medical and dental care

Under certain conditions, the Navy will bear the cost of medical and dental care that active-duty personnel obtain from non-Navy and non-federal sources. Active-duty personnel must seek care from a federal medical facility, if one is available; however, in emergencies—situations where the need for medical or dental attention is such that required authority for such care cannot be obtained—care may be sought from civilian sources. Members who obtain emergency medical or dental care should immediately inform the medical officer or dental officer of the district where the care is rendered, who may then arrange for the patient's transfer to a federal medical treatment facility.

Except in such emergency situations, the Navy will pay for care from non-federal sources only if such care is authorized in advance. Requests for authorization should be submitted by letter.

Overseas, commanding officers may authorize care from other than U.S. naval sources. However, when ships are in NATO or SOFA ports, care shall first be sought from military facilities of the host country, if U.S. facilities are not available.

Authorized medical care includes consultations, hospital care, surgery, nursing, medicine, laboratory and X-ray services, physical therapy, and eye examinations. Authorized dental care includes treatment to relieve pain and stop infection, operative and restorative services, prosthetic treatment to restore extensive loss of masticatory function or to replace anterior teeth for aesthetic reasons; repair of dental prosthesis; treatment rendered as an adjunct to medical or surgical care; and X-rays and drugs. Also authorized are refractions of eyes (provided no prescription is in the health record) and repair or furnishing of spectacles (but not contact lenses).

The Navy will not pay for care provided members continuously absent without authority during a period of treatment. However, should the member return to military control before the care is completed, payment will be made as though no unauthorized absence existed. "Constructive" return to military control occurs when a naval activity informs the civilian facility— orally or in writing—that the Navy will accept responsibility for the patient's care. Return to military control is also effected when a member is arrested by civil authorities at the Navy's request or for a civil offense and after the civil authorities notify the Navy that the member

can be released to military custody.

A Civilian Medical/Dental Care Statement (NAVMED 6320/10) shall be forwarded to the approving officer; the diagnosis shall be listed on the form, and if prior approval was not obtained, the circumstances which necessitated use of non-federal facilities shall be recorded. When the approving officer has received the required documents, he shall determine whether the bills are payable in whole or in part, or whether the claim should be disallowed. Normally, payment should be approved at rates generally prevailing within the area where the care was provided.

Approving authorities shall process bills within 30 days of their receipt. When approving officers already have information available from messages or other correspondence to support payment of the claim, the requirement for a NAVMED 6320/10 shall be waived and the claim approved for payment. Payment shall not be withheld to seek payment from health benefit plans or private insurance policies.

The accounts of Navy and Marine Corps officers should be checked for subsistence.

All commands should ensure that their personnel are aware of Navy policy on obtaining medical and dental care from civilian sources. If a service member should fail to comply with requirements, the Navy may deny responsibility for medical or dental care expenses.—BUMED Instruction 6320.32C of 7 Oct 1977.

### Smallpox immunization for dependents

While the actual hazards of contracting smallpox are steadily diminishing, many countries enforce their sovereign right to protect themselves against the introduction of this disease. Unvaccinated persons may be denied entry into a country, or may be subject to vaccination by force or to medical followup or isolation. Military dependents who contemplate travel overseas, including travel as tourists, should be made aware of local smallpox immunization requirements by their Medical Department representative.

When smallpox vaccination is contraindicated for medical reasons, a dated statement to this effect, written on a physician's professional stationery and signed by a physician, must be attached to the patient's International Certificate of Vaccination (PHS-731). It is not sufficient merely to write "medically contraindicated" on the patient's immunization record.—BUMED Notice 6230 of 11 Oct 1977.

# NAVMED Newsmakers



**LCDR Kaires: Like no other**

The working uniform of LCDR **Pamela Kaires** (MC) is like that of no other Navy woman: The suit weighs 16 lb, the shoes weigh 80 lb, and the belt adds another 84 lb. There's a helmet, too: that weighs 109 lb. But Dr. Kaires sees the uniform as a thing of beauty which she earned the right to wear on her way to becoming the Navy's first woman submarine/diving medical officer. During an eight-week course at the Navy School of Diving and Salvage, Dr. Kaires used the traditional Mark V mixed-gas diving outfit for dives to depths of 300 feet in order to understand diving problems and the psychological effects of diving. When she completes submarine training at New London, Conn., she looks forward to participating in undersea research projects and supporting large salvage operations.

LCDR **Johnnie Turner** (DC), prosthetic officer with the 2d Dental Company, Force Troops/2d Force Service Support Group, Camp Lejeune, N.C., commissioned a doctor of dental surgery last year—his wife, **Carol**. The new LT Turner had been in private practice for two



**Turners: Sharing a career**

years. Why did she decide to go Navy? "I wanted to share a Navy career with my husband," she says.

Second prize in the 1977 All Navy Talent Contest went to a tub-thumping, banjo-picking band of hospital corpsmen known as "The Panhandle Mountain Boys." All from Naval Aerospace and Regional Medical Center, Pensacola, the musical five—HM3 "Mr. Bones" **Covington**, HM3 "Junior" **Barnes**, HM2 "Uncle Ed" **Rowntree**, HM2 "Honky" **Janke**, and HN "Swampstick" **Peacock**—also starred in a locally televised segment of the National Jerry Lewis Muscular Dystrophy Telethon.



**Panhandle Mountain Boys**



**VADM Arentzen congratulates RADM Paulsen on his retirement**

On 27 Sept 1977, RADM **Albert G. Paulsen** retired after more than 32 years of active and inactive service in the Dental Corps of the U.S. Naval Reserve. In his parting remarks, he captured the essence of a lifetime in Navy dentistry:

Many forward-looking changes have taken place in the practice of dentistry in the Dental Corps of the Navy's Medical Department since my first commission early in 1941, and others are certain to follow. To have been a witness to these changes and to be permitted to participate in them—to number among one's friends so many who have been foremost in bringing these changes about—has indeed been a rare privilege.

Few things in life have meant more to me than the profession of which I have been a member and being a part of the great United States Navy! Through both I have been able to be of service to my fellow man, to care for my family, and to provide for my old age (should that ever overtake me). Over 30 years is all too brief a time in which to repay the debt I owe to the dental profession.

The years spent in active practice, in teaching, and in the Navy have been years of absorbing interest, crowded with opportunities for service, happy associations with co-workers, and inspiring contacts with appreciative patients. To these interests should be added the confident belief that all that has gone before in the advancement of dentistry is but a "stepping stone to higher things"—that in the life of a profession, as in life itself, "the best is yet to be."



# The Anniversary Reaction: An Easily Overlooked Clinical Phenomenon

CDR Jesse O. Cavenar, MC, USNR-R

Allan A. Maltbie, M.D.

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Recognition and appropriate management of an anniversary reaction can be of enormous value in the care of patients with otherwise perplexing clinical presentations. An anniversary reaction may be defined as a psychological or physiological event which occurs at a specific time which is significant to the patient, even though he is often unaware of its significance. The period may be the anniversary of a previous loss or trauma to the patient himself or to a person with whom the patient is closely identified. An anniversary reaction may simply occur annually at a specific anniversary date; or the episode may represent a summation of various factors, including multiple losses, where the specific age or situation of the patient—or of another individual with whom the patient identifies—approximates the time and circumstances of a past traumatic experience. The anniversary reaction itself is viewed as the patient's unconscious struggle to master or control the previous trauma by reliving the experience through the formation of symptoms, dreams, or overt behavior.

Freud (1) first described anniversary reaction in 1895. In his report of Elizabeth Von R., Freud noted that his patient experienced the exact remembrance of previous traumas, with expression of associated feelings occurring on the anniversary of the events. In *Beyond the Pleasure Principle* (2), Freud developed the concept of repetition compulsion, charac-

terized by an individual's recurrent efforts to master early psychologically traumatic events not mastered at the time they occurred. Perhaps the most striking clinical example of this process is the anniversary reaction.

Pollock (3) has written extensively on the subject of anniversary reactions and has demonstrated that these reactions are due to inadequate grief or mourning over a personal loss or disappointment. He describes patients in whom symptoms occur at a specific hour of the day, a specific day of the week, or on certain holidays during the year.

Hilgard and Newman (4) reported on patients whose depression or psychotic reactions were precipitated on the anniversary of sibling deaths during childhood. In another report (5), Hilgard noted that an adult patient may develop an anniversary reaction when he reaches the age at which his parent died. And in a third paper (6) he pointed out that a patient may experience a reaction when his child reaches the age at which a trauma occurred in the patient's childhood.

Engel (7), an internist and psychoanalyst, recently published a fascinating personal account of anniversary reaction. He kept a carefully dictated record of his experiences and dreams, and noted multiple examples of phenomena involving the anniversary of the death of his identical twin brother as well as the experience of living through the age when his father died. Both brother and father died from myocardial infarctions. Engel's reactions were both psychological and somatic, and included his own myocardial infarction.

Weiss et al (8) described patients in whom hypertensive crisis, myocardial infarction, and irritable bowel syndrome occurred as anniversary reactions. Other illnesses, such as ulcerative colitis (9), head-

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ache (10), rheumatoid arthritis (11), and various dermatologic reactions (12), have been observed as anniversary phenomena. Cavenar et al (13) have observed headache, back pain, and peptic ulcer disease presenting as physical complaints attributed to anniversary reactions.

In this paper we hope to alert health care personnel to this commonly occurring clinical phenomenon. The following patient reports are illustrative.

## PATIENT REPORTS

**Patient 1.** This thin, 44-year-old married man entered the hospital on the medical service in September 1975 because of peptic ulcer pain. He had first experienced ulcer pain in 1954 while serving on active military duty; his pain had been controlled by antacids until this episode.

Symptoms on admission to the hospital included intractable pain, hematemesis, and partial obstruction. A Billroth II pylorotomy was done. His postoperative course was stormy, for reasons which were not medically apparent, and he required intravenous fluids and gastric suction for 31 days.

After he was discharged from the hospital the patient did not do well. He experienced a progressive loss of energy until he could not work. He reported vomiting and sweating several times a week, symptoms his physician believed represented a minor dumping syndrome.

Because of these complaints, the patient was admitted to the gastroenterology service of the hospital in August 1976. The results of a complete medical evaluation, including endoscopy, oral cholecystogram, proctoscopy, upper and lower gastrointestinal series, and extensive blood work, were normal except for evidence of the previous surgery. There were no findings to account for the patient's symptoms, and medically he was considered to be able to work. Because of the absence of any pathologic condition, psychiatric evaluation of the patient was requested.

On mental status examination the patient was oriented to time, place, and person; he was not psychotic and did not appear clinically depressed. A rigid character structure was present and denial was a major defense mechanism.

Review of the patient's history revealed he had been raised on a farm as the third of eight children. He said he and his father had been "very close," and he reported a warm, caring relationship with his mother. When the patient was 12 years old, the father died on 18 October while undergoing surgery for "stomach problems." The father was 43 at the time of his death. (The patient's own surgery, necessitated by an exacerbation of ulcer pain, was performed in late September of his 43rd year.)

The patient had been unable to attend his father's funeral because he felt he could not stand the anguish and strain. But after the funeral he went alone to the cemetery, where he was able to grieve without other people being present. The patient then quit school and took over his father's job on the farm.

The patient's loss of energy and his apathy toward life in general were felt to represent an anniversary response. He had reached the age at which his father had died and he himself expected to die during his own surgery. He was able to verbalize this feeling on one occasion as he cried about his father's death; massive denial was then necessary to defend against other feelings.

An intravenous sodium amytal interview was done, using the method reported by Cavenar et al (14), in an attempt to recover more of the patient's feelings. The patient did show sadness in talking about his father's death, but no additional affect could be mobilized.

Because of the patient's rigidity and the effect his father's death had upon his total personality structure, a favorable outcome could not be obtained. The patient was discharged to the care of his local physician.

This report illustrates the anniversary reaction in which the patient develops symptoms upon reaching the age at which a parent died. This is a very common clinical presentation of an anniversary reaction; the reaction may be expressed as a physical problem or may be a psychogenic disturbance such as depression or psychosis.

**Patient 2.** This 37-year-old, married, blue collar worker was seen in psychiatric consultation on referral from his family physician. The patient reported a two-week history of increasing sadness, depressed moods, crying spells, anorexia, inability to sleep at night, and suicidal ideation.

On mental status examination, the patient was a coherent, logical man who was not psychotic. He cried readily, admitted depressive symptoms, and expressed fears he might commit suicide. The previous evening, while walking around his property, he had entertained fantasies of walking into a pond; these thoughts frightened him to the point that he sought medical help.

The patient was a religious man who had two children and reported that his marriage was excellent. He had held a responsible position with a manufacturing company for 15 years and reported no difficulty. Neither the patient nor his wife could account for his depression, so in an attempt to ascertain its cause, he was encouraged to talk about any thoughts which occurred to him.

He began talking about farm crops in the area and the need for rain. He casually remarked that the corn was now "about as high" as it was last year when his first cousin, to whom he was close, committed suicide. On further questioning, the patient revealed that the cousin had died by suicide exactly one year ago that week. The patient had not mourned at the time of the cousin's death, and was experiencing an anniversary reaction depression to the loss.

Later he was seen in psychotherapy for two hours, during which time he focused on his feeling of loss over the death and his anger at the cousin for committing suicide. The patient's symptoms resolved and he was referred back to his family physician.

This report illustrates an anniversary reaction in which the dynamic issues were readily apparent and the problem was resolved after several hours of focused, insight-oriented psychotherapy. The prognosis for this patient is excellent.

**Patient 3.** This thin, 56-year-old, married factory worker was admitted to the psychiatry service in November 1976 because of depression, "drop attacks," and the feeling that he was unable to work. For four months, he had experienced increasing sadness, crying spells, anorexia, difficulty sleeping, and suicidal ideation.

On mental status examination, he was nervous and depressed, but not psychotic. He cried readily and admitted to depressive symptoms and suicidal ideation.

The patient said his mother had developed a malignancy while he was living with her; to her distress, he later moved out and deserted her. Her illness progressed and she died two days before Thanksgiving 19 years ago. The funeral was held on Thanksgiving Day.

The patient had experienced drop attacks and dizziness for months prior to entering the hospital. He also reported that his father began to have drop attacks and small strokes in his "late fifties." Concerned because he, too, was now in his late fifties, the patient said he anticipated having a stroke and dying soon.

The patient was encouraged to talk at length about his guilt over deserting his mother. As he became able to verbalize his concerns and as Thanksgiving Day passed without incident, his depression cleared. His drop attacks were determined to be caused by his medication; when the drug was discontinued, the patient's dizziness and drop attacks stopped.

This patient experienced anniversary responses to two different events: he had reached the age at which his father died, and also it was the time of year that his mother died. When he was able to verbalize guilt and anger over these losses, his symptoms improved. His prognosis was good.

**Patient 4.** This 23-year-old woman, married to a doctoral candidate, entered psychoanalysis because of multiple phobias, free-floating anxiety, and low self-esteem.

Despite her superior intellect, the patient had been unable to complete one remaining course needed to obtain her baccalaureate degree. Neither of her parents had been able to complete college in their native land because of the outbreak of World War II, although both had been enrolled at the most respected university in their country when the war started. The mother's life had been spared in a concentration camp because of her superior intelligence. Notwithstanding the adversities her parents had experienced, the patient had angry feelings about and resented both parents because of their lack of education. Her father died of malignancy when the patient was 18, and she had felt some guilt about not arriving home while he was still conscious.

Psychoanalysis showed slow but steady progress, with many issues becoming conscious and being worked through. In the third year of treatment, a dream was brought which seemed out of context with the general flow of material at the moment. The dream concerned yellow roses and crowds of people; the patient's thoughts were of flowers, funerals, and crowds attending funerals. Suddenly, she realized it was five years ago that day that her father had died. This realization led to an outpouring of grief during the hour of therapy, and a grief reaction over the next several weeks. The patient had not been able to grieve at the time of her father's death, but had instead been in a rage at her mother. Additional material over several weeks concerned many feelings—both positive and negative—about her father.

This patient's story shows that even when memories are not consciously available—are totally out of awareness—they exert a strong force unconsciously. The patient's anniversary response was such a force, even though she had no conscious recognition that it was the date of her father's death.

**Patient 5.** This 57-year-old married professional was admitted to the psychiatry service because of dependence on narcotics, barbiturates, and minor tranquilizers.

The patient was dirty and disheveled and had slow, slurred speech. On mental status examination, he appeared moderately depressed, but denied depressive symptoms. No psychosis was apparent, but he seemed to have an organic brain syndrome secondary to the drugs he had taken.

His history disclosed that he had graduated third in his class in professional school and had been a member of professional honorary societies. He had entered private practice of his profession and had been quite successful until he began to drink heav-

ily; he then gradually substituted drugs for alcohol.

As a child, this patient witnessed the accidental death of his father. The father was changing a flat tire on the family car while the patient was sitting in the back seat. The car was struck from the rear by a car driven by an intoxicated youth. The father's legs and pelvis were crushed and he died within hours.

The father had been a professional man and the patient had followed the same profession, beginning to drink and use drugs when he reached the age at which his father had been killed. The patient reported he injected drugs into his legs and buttocks, simulating the injuries his father sustained in the accident.

This report illustrates the onset of an anniversary reaction in a patient who has reached the age at which a significant person died. This patient's prognosis is very poor because of the profound influence this trauma has had upon his entire personality structure, his total inability to verbalize his feelings, and his impulsive addictive use of drugs and alcohol.

## DISCUSSION

Pollock (3) notes that it is necessary in any consideration of anniversary reactions to carefully examine the past life of the patient, paying particular attention to previous events, conflicts, and losses involving significant individuals. The anniversary reaction may be considered as simply a releaser of repressed anxiety-provoking material. The reaction, response, or symptom may be transitory, and adaptation may occur, with reestablishment of a symptom-free psychologic equilibrium. On the other hand, the reaction may result in psychological regression and establishment of persistent pathological defenses leading to chronic disability, as in patients 1 and 5.

The primary dynamic common to all anniversary reactions is inadequate or incomplete mourning of a previous loss. This loss may be recent or may have occurred many years earlier. In the treatment of anniversary reactions, the patient's guilt and unconscious angry feelings directed toward the lost person must be made conscious. Once the anger is verbalized and integrated psychologically, the normal grief process will proceed and the anniversary symptoms abate. This is what happened in patients 2, 3, and 4.

The anniversary reaction may either present as a condition in its own right or may serve as a recurrent anxiety trigger which reactivates a preexisting psychological or medical condition. Certainly in any patient with an unexplained depression, psychosis, psychophysiologic symptom complex, or recurring psychosomatic illness with a set pattern or "coincidental" features mimicking those of a lost loved one, the possibility of anniversary reaction should be considered. It is essential that these unresolved grief reactions be accurately diagnosed, since they are often easily treated by psychotherapy with excellent results.

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## Preventive Medicine

# Lead Poisoning

Lead is a necessary constituent of many products used in the Navy—storage batteries, glass, radiators, conduits and pipes, paints, glazes, solder, printing type metals, plastics, bearings, and chemical tank linings are some examples. Unfortunately, during processing lead can accumulate in workers' bodies, sometimes resulting in lead poisoning.

Lead can interfere with the production of heme and thereby alter the urinary or blood concentration of enzymes and intermediates in heme synthesis or the derivatives. Thus, lead poisoning can lead to accumulation of non-heme iron and protoporphyrin in red blood cells, and an increased proportion of immature red cells in the blood. Anemia from lead poisoning is associated with a reduced red cell life span and other problems in peripheral blood. Symptoms of this anemia include irritability, fatigue, pallor, and sallow complexion. Gastrointestinal symptoms of lead poisoning include intestinal colic, nausea (often without vomiting), constipation,

and sometimes diarrhea. Headaches usually occur before or at the onset of colic.

Peripheral and central nervous system effects occur in severe poisoning. Nervous system involvement consists of considerable loss of motor function but little loss of sensory function. Extensor muscles of hands and feet are often involved.

There are many ways workers can be exposed to lead hazards. Welding, cutting, brazing and soldering of lead-bearing alloys and compounds or metals coated with lead can produce lead fumes and dust in significant concentrations. People may be exposed in machine and automobile repair shops when lead-bearing gasoline is burned in engines and lead is subsequently released into the environment through engine exhaust systems.

Although ingestion of lead may not be common in the Navy, the possibility cannot be overlooked. Ingestion occurs because of poor personal hygiene, or results from use of improperly fired lead-glazed containers.

Lead exposure and serious illness can be avoided if safety precautions are taken and workers are informed about the consequences of lead exposure. Local exhaust ventilation and collection systems should be used and properly maintained to prevent lead dust and fumes from accumulating in the work environment. Where local exhaust ventilation is not available, a NIOSH-approved respirator should be used (NS-00-099-8939).

Eating, drinking, or smoking in work areas should be avoided. Alcoholic beverages should also be avoided because alcohol tends to increase lead absorption potential.

Good personal hygiene habits—wearing clean clothing, brushing teeth regularly, and bathing after leaving work—will help remove lead dust from the body.

Medical Department representatives should instruct personnel who work in hazardous areas to report any illness which could be related to lead poisoning.

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# Tooth-Supported Full Denture Prostheses: Review of the Literature and Patient Report

LT Gary E. Jeffers, DC, USN

While alveolar ridge resorption following multiple extractions has always been a prime concern for oral surgeons and prosthodontists, increased longevity of patients has made it an increasingly important factor in complete denture construction. Many dentists treat elderly patients who have worn several sets of dentures—each less satisfactory than the previous set—since being rendered edentulous at an early age. These patients find it difficult to accept that continuous residual ridge resorption has made them “dental cripples.” Other patients, who have managed to retain their teeth until an advanced age, find they are unable to cope with dentures either physiologically or psychologically.

Another concern in denture construction is to provide additional retentive and stabilizing forces to achieve adequate function and comfort for denture wearers.

The tooth-supported prosthesis—or overdenture, as it is often known\*—can help the prosthodontist prevent further bony destruction, while assuring adequate function and patient comfort. This prosthesis is basically a partial or complete denture fabricated over retained teeth or roots which may or may not have been prepared to receive the prosthesis (1).

This paper reviews the literature regarding use of the tooth-supported full denture prosthesis and offers a detailed account of one patient's treatment.

## REVIEW OF LITERATURE

While the concept of overdentures is not new, it has in recent years gained the attention of increasing numbers of dental practitioners. As a result, overdentures are today the preferred modality of treatment for many more patients.

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\*This device has also been referred to as an overlaying denture, telescopic denture, or hybrid prosthesis.

The earliest reference to the overdenture concept is that of Burkes in 1861, who reported the proceedings of the American Dental Convention in New Haven, Conn. At that meeting Drs. Butler, Roberts, Atkinson, Sutton, and Hayes presented a symposium entitled, “Surgical Preparation of the Mouth for Artificial Dentures: Should the Roots of Broken and Decayed Teeth Always be Removed?” Hayes described a patient in whom a maxillary denture, placed over two roots, was after 12 years still serviceable and comfortable (2).

In 1945, Black (2) used this technique to provide complete dentures for a 14-year-old girl with congenital absence of permanent dentition. Black made use of four maxillary and four mandibular teeth in fitting modified crowns to the molars. Twenty-seven years later, the deciduous mandibular molars were still intact supporting a lower denture.

During World War II, military dentists often used overdentures to treat inadequate and mutilated dentitions (2). For example, *Dental Digest* of July 1948 carries a report of a patient treated with a denture placed over two retained molars.

Rehn (3), in 1952, was one of the first to advocate the overdenture principle in retaining as little as a single “front” tooth to support a prosthetic device. In 1958, Miller (4), discussing the findings of a ten-year study, reported that when a few isolated teeth were retained to support a complete denture, the “weak” teeth regained their healthy status. Later, Morrow and his colleagues (5) advocated using gold copings over retained teeth and concomitant use of metal castings within the denture base. Lord and Teel (6), in 1969, reported success after using overdentures in their practice for seven years.

Since 1969, various methods of using natural teeth to support and retain an overlay prosthesis have been described (7-10). Brill (7) recommended reducing the clinical crown height to just over 1 mm to improve the crown-root ratio, and advocated the use of stud attachments. Dolder (8), on the other hand, suggested that a rigid bar be used to join gold copings on isolated teeth.

## ADVANTAGES OF OVERDENTURES

In recent years, Dodge (11) and other researchers (2-12), through knowledge gained by clinical experience, have been able to enumerate a number of advantages that may make overdentures preferable to conventional prosthetic devices:

**Stability.** Vertical, anterior-posterior, and lateral stability is enhanced because of the presence of abutment teeth and the preservation of alveolar bone. Thus the stability of overdentures is comparable to stability obtained with fixed or removable partial dentures (10-13).

**Retention.** The alveolar bone, which normally "melts away" when teeth are extracted, remains relatively intact so long as a root and associated periodontal structures are maintained in a healthy state within the bone (14). Tallgren (15) reports that the average linear bone loss of 6.6 mm in the mandibular anterior ridge is as much as four times greater than bone loss in the maxillary arch.

Both Goerig (16) and Kelly (17) have reported a number of indications for use of overdentures in the maxilla. They found distinct or total bone loss in the maxillary anterior region in patients wearing a complete maxillary denture opposing natural dentition in the lower ridge, even in patients wearing a mandibular distal extension partial denture. Also, a seven-year study concluded in 1967 showed that, over a given period of time, the anterior part of the mandible lost ten times more bone under complete dentures than when overdentures were used (18).

**Proprioception.** Proprioceptors appear to lie almost entirely within the tissues of the periodontium to provide an awareness of jaw-space relationships (11) and to protect against accidental traumatic overclosure of the jaws. When teeth and their associated periodontal structures are removed, this sensitivity is reduced or lost. Manly (19) and associates demonstrated this lack of perception in patients with complete dentures. Kruger and Michael (20) placed microelectrodes in the brains of decerebrated cats and then used manual pressure to stimulate teeth and other areas of the oral cavity. They found the canine teeth to be more richly endowed with neurons than any other teeth. In another study, Jerge (21) demonstrated that the activity of specific muscles attached to the mandible is directed by specific receptors in specific teeth.

Pfaffman (22), a prime researcher in the area of proprioception, showed that removal of coronal and pulpal tissues produced no change in the elicited response. Likewise—and this is probably Pfaffmann's

most significant finding—if all but a small portion of a root were removed, only extremely light pressure on the remaining portion was needed to evoke a response.

Loiselle and his associates (18) found that eccentric contacts are easily memorized when the patient has a definite end point, as is the case with the "reduced tooth." Loiselle refers to this mechanism as "reinforcement awards." This ability to remember contacts is physiologically limited once the last tooth has been extracted. Loiselle therefore concludes that the reduction of the crowns of at least two mandibular canine teeth and use of overdentures will help preserve proprioceptive inputs to the neural centers.

**Vertical dimension.** When teeth are retained to support overdentures, the height of vertical dimension, if determined to be acceptable, can be maintained with a great degree of accuracy. However, even retaining only a few roots aids considerably in tooth placement. Furthermore, retention of a few teeth adds stability to the recording bases (2).

**Comfort.** Ideally, the denture should be supported by abutment teeth with the remaining teeth acting as stress receivers, thus relieving the residual ridge of much of the occlusal load. Since the denture is supported primarily by the abutment teeth in most patients, the soft tissues of the alveolar ridge are spared much abuse. The patient with overdentures is therefore much more comfortable than the patient who wears complete dentures (12).

**Lip and face support.** With the retention of natural dentition beneath the overdenture and maintenance of a more natural vertical dimension of occlusion, lip and facial structure support can more readily be maintained and settling is minimized.

**Simple construction.** The technique used to create overdentures is basically the same as the method used to fabricate complete dentures. No special training is needed to enable dentists or technicians to prepare overdenture prostheses.

**Patient acceptance.** Patient acceptance of overdentures is excellent. Patients with overdentures gain a psychological advantage from knowing they still have their own teeth and need not go through the trauma of being rendered totally edentulous. Loss of all teeth appears to be more traumatic in older patients than in younger ones. Also, the patient's masticatory performance is enhanced with overdentures as a result of the excellent vertical stability; many wearers report that with their new prosthesis they can eat anything (23).

**Ease in cleaning.** With overdentures, all surfaces of isolated abutments are accessible for cleaning.

*Conversion capabilities.* Since tissue coverage and border extensions of overdentures are similar to complete dentures, the eventual loss of one or more of the retained "abutment" teeth does not preclude conversion to a conventional tissue-supported denture. Either spaces can be filled in or the denture can be relieved or rebased, if the need arises (2).

## INDICATIONS

A tooth-supported denture should be the treatment of choice if the following criteria can be met:

- Retention of one or more teeth or roots, to allow increased retention and stability of the denture.
- The overdenture would be easier to construct than a conventional denture.
- Preservation of the alveolar process would be enhanced.

Overdentures are also indicated for various congenital and acquired defects of the dentition (24). Congenital defects which may benefit from this mode of treatment include cleft palate, oligodontia, and cleidocranial dysostosis; patients with Class III malocclusion (such as a prognathic jaw) which cannot be corrected by orthodontic treatment or surgery may also benefit from overdentures.

Acquired defects suitable for correction with overdentures include traumatic malalignment following accidents or habitual misuse, and teeth which have become badly eroded, abraded or stained, or are unsightly because of fluorosis.

## CONTRAINDICATIONS

Overdentures are contraindicated if the teeth in question could adequately serve as abutments for conventional fixed or removable partial dentures. If after concentrated efforts to instruct him, the patient refuses or is incapable of maintaining adequate oral hygiene, overdentures are again contraindicated (25). In these patients, the suggested treatment is to extract all remaining teeth and replace them with complete dentures.

Other contraindications are certain systemic complications which may preclude necessary clinical procedures, inadequate interarch distance (5), and the expense of extensive endodontic therapy which sometimes precedes overdenture construction.

## PREPARING ABUTMENT TEETH

Careful selection of appropriate abutment teeth is of prime importance to the ultimate success or

failure of the overdenture prosthesis. Teeth to be retained as overdenture abutments should be chosen on the basis of location, with special consideration given to any advantages the teeth may offer for denture stability and preservation of residual ridges (26). For example, edentulous areas in the anterior portion of both dental arches have been shown to be most subject to destruction; it would be therefore beneficial to retain healthy canines and premolars in these areas. As has been pointed out by some observers (18,27,28), mandibular canines are most often retained because they are usually the last teeth lost and because without these teeth the mandibular denture would be more difficult to stabilize. When teeth are not available in both sides of the arch, an isolated tooth can be a successful abutment for an overdenture (27).

Maintaining teeth in both arches can be of great assistance in establishing vertical dimension. Retaining a canine and, whenever possible, a second rather than the first premolar provides for broader support. According to Morrow and his associates (10), optimal distribution would be two canines and two molars in a single arch, providing excellent distribution of vertical forces. This additional support is most important when the denture is opposed by natural dentition.

Also, retained teeth should be maintained within a healthy periodontium. Deep periodontal pockets must be eliminated. An adequate zone of attached gingiva is a prerequisite for any tooth to be considered as an overdenture abutment.

In the absence of acceptable periodontal health, a number of corrective procedures can be accomplished to regain suitable periodontal architecture. These preliminary mucogingival surgical procedures range from a simple gingivectomy to eliminate pockets, to the more heroic techniques of full-thickness or split-thickness apically positioned flaps and free gingival grafts to increase the band of attached gingiva.

While some investigators (27) recommend the use of acrylic resin liners to provide additional support to ridge tissues following surgery, others believe that this practice is contraindicated. Immekus and Aramany (29) reported that resilient silicone denture liners may help retention; however, they also found that when placed over teeth, as is done with overdentures, such liners can create an optimal environment for bacterial growth with resultant destruction of the teeth and supporting soft tissues.

Finally, tooth mobility in itself is not a contraindication to using a tooth for an abutment. The determining factor is the amount of remaining bony sup-



port (27). The minimal acceptable level of bony support is five millimeters.

Frequently the dentist must greatly reduce crown height to derive a more favorable crown-to-root ratio and thereby minimize traumatic lateral forces upon teeth. The more the crown is reduced in such patients, the better the prognosis; a tooth which may have exhibited mobility often becomes tight in its alveolus within a short time (24).

In most instances where tooth reduction has been necessary, devitalization is routinely done. Only in rare instances when pulpal tissue is greatly receded can sufficient tooth reduction be accomplished without first completing endodontics (24). Either composite or amalgam restorations are acceptable for restoring the coronal portion of root canals (1,16).

A matter of dispute among researchers evolves from the question of whether or not gold posts or copings should be incorporated into abutment teeth. The proponents of the coping technique are led by Brewer and Fenton (1,24), who believe that the gold coping is the treatment of choice. They contend that the patient seems to gain a tremendous psychological advantage when remaining tooth structures are covered with gold, as most patients do not like to have uncovered roots in their mouth. In addition, some immunity to decay is imparted by the metal cover.

Since the remaining tooth structures often consist of only dentin and cementum, gold copings offer protection from such adverse effects as abrasion, attrition, erosion, and trauma (4,13,12). Furthermore, the coping provides an optimum contour to the abutment teeth (30). When used, copings should be at least 1 mm thick.

There have been many instances in which copings have worn thin and even been perforated by abrasion from denture resin. This problem has been countered somewhat successfully with chrome cobalt bearings (10) or denture-retained copings (4,31) placed over the tooth-borne copings. This practice is not widespread, the general feeling being that the resin of the overlay denture provides greater ease of adjustment and alteration of the denture base.

Both short copings and longer, more tapered designs have been advocated. The concept of design and function was studied by Warren and Caputo (32), who developed a method for photoelastic stress analysis to determine and compare the transfer of forces to the alveolar bone for various abutment designs. The researchers concluded that a direct relationship exists between the stability and retention that each design provides and the amount of stress

and torque transferred to supporting structures. If stress is the chief consideration, the short coping offers the best prognosis, the two researchers report.

Lord and Teel (27) initially felt that gold copings should be placed over all retained teeth as soon as the tissues healed and the teeth stabilized. But more recently they have joined critics proposing that so long as sound tooth structure is present along with adequate oral hygiene, copings are unnecessary, as caries activity would be reduced to a minimum. When copings are not used, daily fluoride applications to exposed tooth surfaces are advocated to protect and prolong the integrity of retained teeth (24).

### USE OF ATTACHMENT DEVICES

Occasionally, for retentive purposes, various types of attachment devices have been used in conjunction with conventional techniques already discussed. Dodge (11) believes that patients derive considerable benefit from the use of such attachments.

A number of these attachment devices have been reported in the literature. Generally, they are of three main types: those on top of the retained root, those within the root structure itself, and those retained with a bar connecting the abutment teeth (31). Devices in the first two groups are basically a male-female type with one portion incorporated into the denture base and the other component placed within the retained tooth.

For example, the Dalbo 604 attachment (Figure 1), as described by Zamikoff (31), has a male component

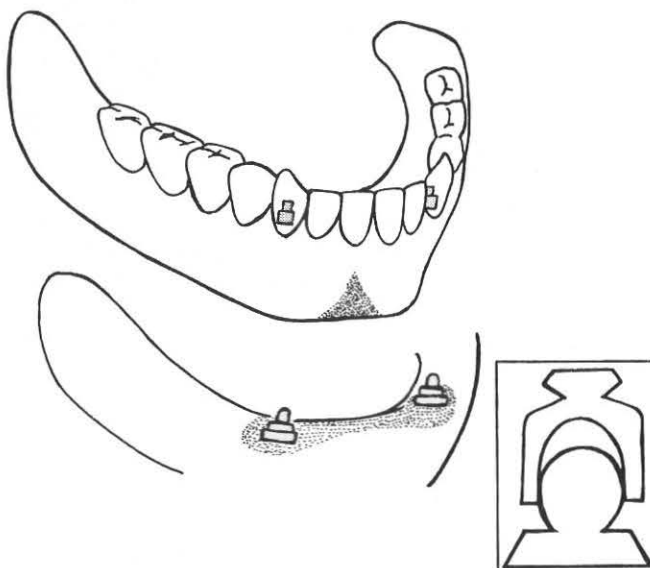


FIGURE 1. An attachment coping overdenture utilizing the Dalbo 604 attachment. The round portion (shown in box) permits movement without torquing the abutment teeth.

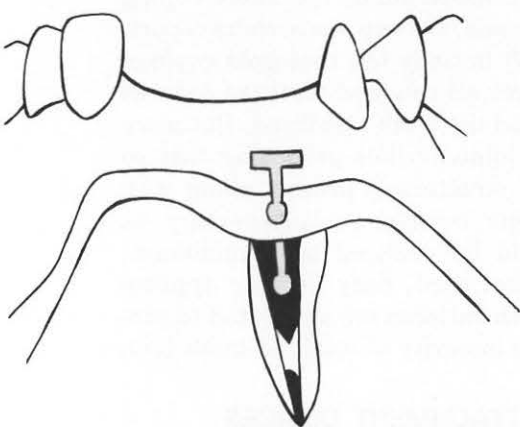


FIGURE 2. Attachment coping overdenture with a Zest Anchor attachment device.

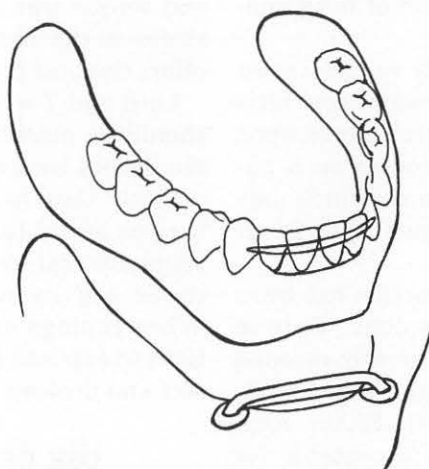


FIGURE 3A. Attachment coping denture using Dolder bar.

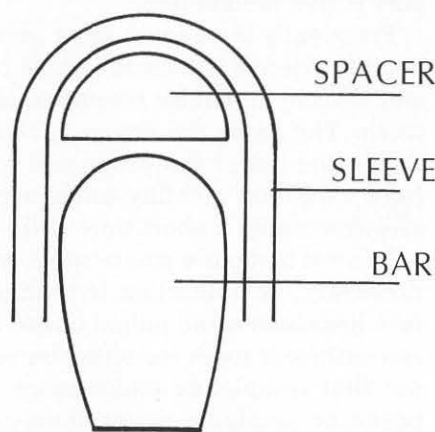


FIGURE 3B. Cross-section of Dolder bar apparatus. A wire space is used only during processing to maintain a 1 mm space between bar and overlying sleeve in finished denture.

fixed to the tooth and a female component within the denture base. The spherical shape of this attachment allows both anteroposterior and mesiodistal movement without torquing of the abutment tooth. The main disadvantage is increased cost and additional space required to insert the device.

In another attachment device, the Zest Anchor (Figure 2), the female portion is cemented into a specially prepared cavity within the root (31). The male component, which extends from beneath the denture base and inserts into the root receptacle, is composed of nylon—a material that permits slight movements of the denture, eliminating the need for exact parallelism of the attachments during construction. The Zest Anchor overcomes the space problem encountered by the Dalbo 604 since its bulk is cemented within the root structure.

Excellent retention is obtained from a number of bar-type appliances, such as the Dolder bar (8,31). This device (Figure 3A) consists of an egg-shaped bar which is attached to the copings of the abutment teeth and acts as a splint. The bar is overlaid with a sleeve contained within the denture base (Figure 3B) which snaps over the bar when the denture is inserted. A 1 mm space between the bar and the overlying sleeve in rest position allows some movement of the denture base in function; this movement does not interfere with retention and is important for preserving the abutment teeth.

Other attachment devices described in the literature include the Kurer Stud attachment in which posts with threaded shanks are placed in each root

canal, which are then covered with a gold stud-type casting. Cast gold retentive clasps are incorporated into the denture base to engage the male portion of the stud attachment (Figure 4) when the denture is inserted. Crum and Loiselle (33), who described this device, emphasize that it offers the best support for a mandibular denture. They have termed their device a "physiological implant," contending that it enhances proprioceptive feedback mechanisms otherwise lost with the extraction of teeth.

Dental practitioners should carefully examine the advantages and disadvantages of these and other attachment devices when considering their use. These attachments may place undesirable force on the abutment teeth. The additional time and expense involved should also be considered in determining whether or not their use would be desirable in treating a particular patient.

## REPORT OF A PATIENT

This 54-year-old Caucasian male, a railroad worker, presented for treatment in the Outpatient Clinic of the University of Pittsburgh School of Dental Medicine. Pertinent medical findings included a problem of chronic alcohol abuse with associated anemia and malnutrition. Clinical and radiographic findings revealed a grossly neglected dentition with rampant dental caries, severe generalized periodontitis, and several missing teeth. Three of the remaining five maxillary teeth presented with large periapical radiolucent areas later diagnosed as acute or chronic alveolar abscesses. Oral hygiene was nonexistent.

The patient wanted to keep his remaining teeth, but his poor periodontal condition did not offer a favorable prognosis. The mandibular canine teeth could be retained as abutments for an

overlay denture. A treatment plan and appointment schedule were prepared as follows:

**Appointment 1.** The patient was required to attend a preventive dentistry film and lecture presentation, followed by extensive oral hygiene instruction. His remaining teeth were scaled for removal of gross calculus deposits.

**Appointment 2.** Anticipating ultimate preparation of dentures utilizing the overdenture technique, the dental team gave careful consideration to recording the patient's vertical dimension. Accurate measurements were obtained after determining the vertical dimension of rest position and following closure to the desired vertical dimension of occlusion.

**Appointment 3.** All remaining teeth except the two mandibular canines were extracted.

**Appointment 4.** The patient returned with no significant improvement in oral hygiene. Home care was again reinforced and the teeth were rescaled and polished. The patient was instructed to call the clinic for an appointment when he felt he was able to maintain adequate standards of dental care at home.

**Appointment 5.** Two weeks later the patient was seen with marked improvement. Plaque scores were almost nil and gingival inflammation around the remaining teeth was significantly reduced. Pocket depth had been reduced from 6 mm to approximately 4 mm.

**Appointment 6.** Gingivectomies were performed around teeth 22 and 27 to eliminate pockets. Mobility had still not decreased.

**Appointments 7 and 8.** Endodontics was done on both teeth, as it was necessary to significantly reduce crown height to provide a favorable crown-root ratio.

**Appointment 9.** The abutment teeth were prepared as shown in Figure 5 (extensive labial reduction is necessary to allow adequate space for setting the overlying denture teeth). Next, two-thirds of the gutta-percha filling was removed to prepare the tooth to receive a post (Figure 6). A beveled finish line was prepared around the tooth. (Lateral grooves can be utilized within the post hole for added retention, if desired [31]). Rubber-base copper tube impressions of each abutment tooth were then made.

**Appointment 10.** Gold copings, prepared according to the method described by Welker and Kramer (30), were cemented in place.

**Appointment 11.** Rubber-base final impressions were made. A stone cast was prepared for design of a small overlay framework of chrome cobalt.

**Appointment 12.** The chrome cobalt framework (Figure 7) was placed and adjusted to assure adequate relief around the abutment copings. It was then incorporated into the acrylic denture base for further strength and support, and the overlay denture and opposing maxillary complete denture were constructed in the usual manner.

At a subsequent visit, the overlay denture was given to the patient. Oral hygiene and care of the prosthesis was reinforced.

The patient was seen at periodic intervals for follow-up care and minor adjustments as necessary. After six months, he had experienced no adverse effects and radiographs at that time revealed no change in bony support. The patient's nutrition had significantly improved and he had sought assistance from an alcohol rehabilitation center.

## SUMMARY

Overlay dentures, now being used in increased numbers, are providing satisfaction and lasting

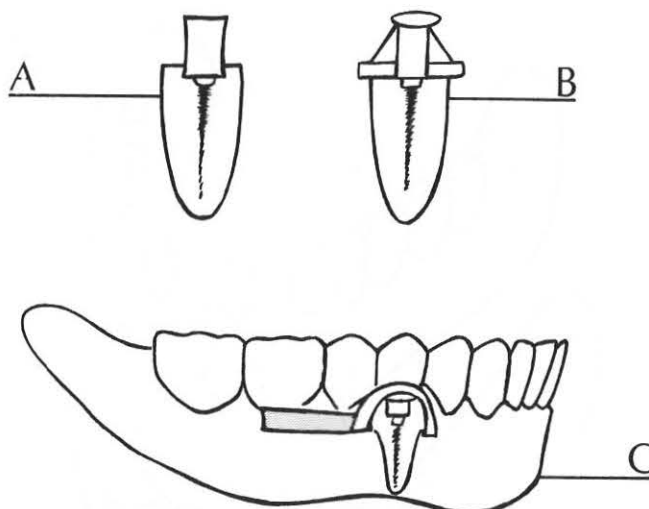


FIGURE 4. (A) Anchor post attachment within the root canal. (B) Male portion of stud attachment. (C) Stud attachment with retentive clasp as related within the denture.

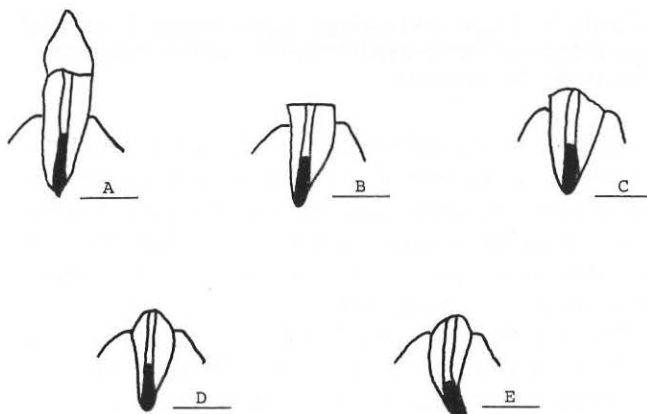


FIGURE 5. Preparation of canine abutment teeth: (A) Tooth prior to preparation. Note its unfavorable crown-root ratio. (B) Tooth is sectioned 3 mm to 4 mm above crest of gingiva. (C) Extensive labial reduction is necessary to enable proper setting of overlying denture teeth. (D) Lingual reduction helps remove unfavorable undercuts. (E) Labial view showing proximal reduction.

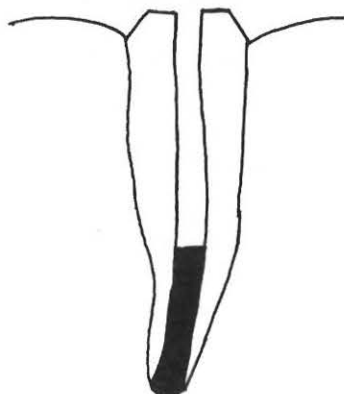
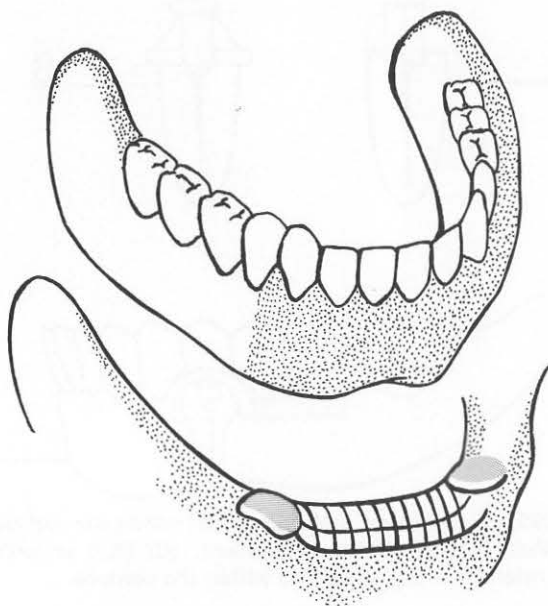


FIGURE 6. Tooth prepared for post and copings.





**FIGURE 7.** Round gold copings approximately 3 mm high with overlying chrome cobalt framework before incorporation into acrylic denture base.

benefit to many individuals. Although not without problems, a majority of overdenture appliances have been used with great success. Careful patient selection, preparation, and education can make the overdenture technique a valuable asset in the overall plan for preventive prosthodontics.

This article is not intended to be all-encompassing with regard to overlay dentures. While I have attempted to present an overview of the topic as a means of stimulating thought, I realize that many other theories also exist. The dentist must be open-minded to derive full benefit from research into this important area of dentistry.

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## Scholars' Scuttlebutt

# Servicemen's and Veterans Group Life Insurance

Servicemen's Group Life Insurance (SGLI) offers military personnel up to \$20,000 of group coverage, term life insurance, with no cash, loan, paid-up, or extended insurance value. The \$3.40 monthly premium for this coverage is automatically deducted from your paycheck.

You may decline SGLI coverage, or you may reduce your coverage to \$15,000, \$10,000 or \$5,000 with corresponding reductions in premiums to \$2.55, \$1.70 and \$0.85.

To decline or reduce SGLI coverage, you must fill out VA Form 29-8286 and file it with the disbursing officer at your active duty or active-duty-for training (ACDUTRA) station.

Members of the Naval Reserve who report to ACDUTRA for more than 30 days automatically receive the \$20,000 SGLI coverage. Since Armed Forces Health Professions Scholarship Program students are required by law to spend 45 days each year on ACDUTRA, they are automatically covered under SGLI during their ACDUTRA tour and 120 days beyond. Naval Reserve students in other programs, such as the Dental Student 1925I Program, are also eligible if their ACDUTRA lasts more than 30 days.

After release from ACDUTRA, your SGLI coverage continues for 120 days without any premium charge. You may then extend your coverage by converting to Veterans Group Life Insurance (VGLI). The amount of coverage and the premiums are the same as SGLI, but the method of premium payment is different; also, the length of participation is limited to five years and is nonrenewable.

Students cannot apply for VGLI unless they were previously insured under SGLI. Also, the VGLI policy cannot be for an amount greater than the SGLI coverage. After release from ACDUTRA, you will have 120 days to convert to VGLI without evidence of insurability. Once these 120 days have elapsed, you have an additional year in which to apply for VGLI, but evidence of insurability may be required.

### HOW TO APPLY FOR VGLI

*Within 120 days of release from ACDUTRA:*

1) Obtain VA Form 29-8714 (Application for Veterans Group Life Insurance) from any VA office or from OSGLI, 212 Washington St., Newark, N.J. 07102.

2) Mail the complete VA form along with a fully endorsed copy of your ACDUTRA orders and \$3.40 to OSGLI. Upon approval of your application, OSGLI will send you a certificate and supply of monthly premium payment cards. Your subsequent monthly payments will not come due until one month after the 120-day "free premium" period. Arrangements may also be made to pay quarterly, semiannually, or annually.

*Within one year after 120 days have elapsed:*

1) Obtain VA Form 29-8714-2 (Application for Veterans Group Life Insurance—Veterans Separated More Than 120 Days) from any VA office or from OSGLI.

2) Follow the same instructions given above. The basic difference between the two forms is inclusion of a health information section on VA 29-8714-2. OSGLI may also request additional medical information or further proof of insurability if warranted by your answers in the health information section.

### FUTURE ACDUTRA AND ACTIVE DUTY

Although you may carry both VGLI and SGLI, the combined amount of coverage cannot exceed \$20,000. When you report for each tour of ACDUTRA, you are again automatically covered under SGLI and \$3.40 per month will be deducted from your pay. If you wish to stop this deduction, upon reporting for ACDUTRA you must immediately decline SGLI in writing on VA Form 29-8286. Either the personnel office or the disbursing office at your ACDUTRA station will have this form.

You may not cancel your VGLI to take advantage of the 120-day SGLI "free premium" period each time you report for ACDUTRA. However, once you report for extended active duty after graduation, you should cancel your VGLI policy and take SGLI coverage. You will again become eligible for the VGLI five-year non-renewable policy after your release from active duty.



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